

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 26 countries at 123 production facilities and 9 research centers, and 7,900 dealerships and service centers in 30 countries. Michelin employs a total of 125,000 people worldwide. Net sales in 2021 were €23.7 billion.

Technological leader in tires and tracks and the world's leading brand of premium tires for individuals and businesses, the Michelin group works closely with manufacturers to bring innovations to all markets (sustainable tires, connected tires, radial tires for agricultural machinery, civil engineering, and aircraft and off-road solutions). Associated brands and services also include dealerships and service centers (Euromaster, TBC, TyrePlus), online retailing (Allopeus, Blackcircles) and wholesalers (Euromaster and Ihle AG).

As the market leader in connected tires and a major partner in digital fleet management, the Michelin Group offers its corporate customers services and solutions that improve their performance, simplify their maintenance, increase asset uptime, enhance their safety performance, reduce their costs and attenuate their environmental impact. Unveiled in November 2021, the Michelin Connected Fleet umbrella brand now consolidates all the fleet Services & Solutions under a single identity, enhancing the synergies among Sascar, Masternaut, and Michelin's long-standing tire-related products and services. The new solution will be gradually deployed around the world.

In June 2021 Michelin launched "WATEA by Michelin" to support its corporate customers in transitioning to zero-emission mobility.

Michelin enjoys unrivaled expertise in high-tech materials, from their properties and possible combinations to their process engineering and applications. Already a core factor in the unique sustainable performance of the Group's tires, these capabilities are being enhanced and marketed to customers in other industries through a proactive policy of acquisitions, incubators and partnerships as part of specialized joint ventures. The high-tech materials business is organized around four divisions: - High-tech sustainable flexible composites (composites solutions: Fenner, Fabri Cote, AirCaptif; Polymer components: ResiCare, AraNea Composite; Sustainable materials: Pyrowave, Enviro, Lehigh and Biobutterfly) . - Medical applications, expanding the range of biocompatible products, in particular for use in regenerative medicine and cell therapy. - Metal 3D printing with AddUP, a 50/50 joint venture created in 2016 with industrial engineering specialist Fives. AddUP markets a comprehensive range of metal 3D printing solutions comprising machines and software, consulting and training services, and component design and production. - Hydrogen mobility, making the Symbio joint venture with Faurecia a world leader in hydrogen mobility systems (hydrogen fuel cell systems for light vehicles, commercial vehicles, trucks and other applications).

C0.2

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

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

C0.3

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

- Brazil
- Canada
- China
- France
- Germany
- Hungary
- India
- Indonesia
- 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 chosen approach for consolidating your GHG inventory.

Financial control

C0.8

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

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	FR0000121261

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Board-level committee	The Group Executive Committee (GEC), Group Management Committee (GMC) and the Supervisory Board are the 3 board-level committees responsible for climate-related issues. The GEC -- the managing chairman, general manager and executive VPs -- focuses on strategic decisions: corporate transformations, business models, acquisitions, performance, brand strategy, and sustainable growth. It oversees the enterprise risk management system including climate-related risks. 2 members -- executive VPs of manufacturing and R&D, respectively -- have delegated responsibility to make decisions on climate-related risks and opportunities regarding operations through the Environmental Governance (EG). The GEC oversees climate-related risks and opportunities regarding business strategy through the annual strategic planning process for business units. The GMC is comprised of the GEC plus the heads of Strategy, Purchasing, Corporate Business Services, Finance, Legal Affairs, Quality, Audit, Internal Control and Risk Management, Supply Chain, Information Systems, and the China and North America Regions. It manages transformation, competitiveness, integration of acquisitions, internal control and quality, and ensures that its decisions are widely embraced across the organization. It oversees progress against climate-related targets, managed through a transformation process "All in Action for the Environment", and external engagement on decarbonization of transport and mobility systems. It is briefed twice a year by the Chief Sustainability Officer to ensure that all climate-change related issues overseen by the EG are reviewed at the highest level of the company. The GEC and GMC are therefore responsible for overseeing assessment and management of risks and opportunities related to climate change for Michelin and its subsidiaries. The Supervisory Board's role is to exercise permanent oversight of the Group's management and assess its quality for the benefit of the shareholders. Its 4-member CSR Committee examines the Group's strategy, objectives, policies and commitments regarding climate change and makes recommendations in this regard; ensures the integrity, completeness and exemplary nature of the climate change transition plan (decarbonization plan and business strategy transition) and initiatives; reviews strategic roadmaps and their implementation.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	Reviewing and guiding strategy: The Group Management Committee (GMC), which brings together the Group Executive Committee (GEC, or management board) and the heads of Strategy, Purchasing, Corporate Business Services, Finance, Legal Affairs, Quality, Audit, Internal Control and Risk Management, Supply Chain, Information Systems, and the China and North America Regions, reviews all strategic actions related to climate change. To do this, it conducts a biannual review, organized by the corporate sustainability officer, of decisions made and issues handled by the Environmental Governance. This review enables the GMC to verify that steady progress is being made towards short-, medium- and long-term CO2 reduction targets and validate the strategic objectives for major climate-related issues and risks and their internal control. Monitoring and overseeing progress against goals and targets for addressing climate-related issues: Twice yearly the GMC regularly reviews the indicators monitored by the Environmental Governance, which include KPIs on reducing Scope 1&2 and Scope 3 CO2 emissions and achieving carbon neutrality in 2050, 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. As of 2021 the GMC oversees 6 Group-wide transformations, one of which is “All in Action for the Environment”. This transformation includes reaching carbon neutrality by 2050 for Scopes 1, 2 and 3 and focusing on short-term CO2 reductions in manufacturing, logistics and raw materials, while contributing to downstream users’ carbon neutrality with products and services enabling highly energy efficient and low carbon mobility. The role of the GMC is to ensure that the necessary changes take place across Group’s organizations that will enable the roadmap to carbon neutrality to be implemented and achieved.
Scheduled – all meetings	Reviewing and guiding major plans of action	<Not Applicable>	The Group Executive Committee by delegation of decision-making to two members – the executive VPs of manufacturing and R&D, respectively, as co-chairs of the Environmental Governance (EG) – reviews, guides and decides on major plans of action for managing climate-related risks and opportunities regarding operations.
Scheduled – some meetings	Reviewing and guiding business plans	<Not Applicable>	The Group Executive Committee (GEC) conducts an annual review of how the business units’, operational and support departments’ and regions’ 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. The review focuses on customers’ expectations and willingness to pay for sustainable mobility offers that create value balanced between people, planet and profit and that drive innovation roadmaps over the long run. The review concludes by highlighting changes that are needed to develop opportunities and manage risks related to “green mobility”. It allows for the GEC to provide the necessary guidance and directives on further developing opportunities and managing risks related to climate change.
Other, please specify (Annually)	Reviewing and guiding risk management policies Setting performance objectives Overseeing major capital expenditures, acquisitions and divestitures	<Not Applicable>	Setting performance objectives: Once a year the Group Management Committee reviews the indicators monitored by the Environmental Governance (EG). These indicators include climate-change related objectives for emissions mitigation coverings Scopes 1, 2 and 3 as well as reducing other environmental impacts and 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 Group Executive Committee (GEC) in dedicated meetings either at the conclusion of the annual strategic planning process, which covers all divisions and activities, or at dedicated ad hoc meetings. The decisions are supported by information on 1) new business models and ventures in line with the Group’s 2030 strategy “Michelin in Motion” provided by business units and/or the activities carried out under the Corporate Innovation Board, and 2) CO2 mitigation opportunities for own operations, provided by the EG. Reviewing and guiding risk management policies: The corporate risk management framework and the annual risk map are reviewed by the GEC. In 2020, the review included a new environmental risk map approved by the EG that includes climate-related risks corresponding to the TCFD approach of physical risks and transition risks.
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding risk management policies Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	The Supervisory Board CSR Committee verifies that the internal management system for advancing the Group’s climate change strategy is robust and meets the needs and external requirements that it identified. It receives the presentation of the Group’s CSR risk map, which includes physical and transition risks related to climate change, every year. It reviews, together with the Audit Committee, the risks and opportunities thus identified and is kept informed of their evolution and of the characteristics of their management systems. It reviews the Group’s climate change-related policies, guidelines and standards and ensures that they are effective. In its role to monitor the CSR topics covered by the Group’s CSR governance both in terms of actions and monitoring indicators, it issues opinions and forward-looking recommendations in particular in light of weaknesses of the actions or indicators, including those under the Group climate change strategy.

C1.1d

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

Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1 Yes	The 2 members of the Group Executive Committee (GEC) who co-chair the Environmental Governance have done so since 2018, accumulating knowledge for managing climate-related risks and opportunities, including setting science-based targets, assessing physical risks of climate change, and applying climate change scenarios to transition analysis. The chair of the Supervisory Board CSR Committee has since 2020 managed the process of 1) reviewing and guiding strategy, 2) reviewing and guiding risk management policies, and 3) monitoring and overseeing progress against goals and targets for addressing climate-related issues. Dedicated training courses: The full GEC has undergone training on climate scenarios and their application to corporate strategy transition. Certain members of the GEC and Group Management Committee (GMC) have taken the training course “The Climate School”.	<Not Applicable>	<Not Applicable>

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Half-yearly
Other C-Suite Officer, please specify (General Manager)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Half-yearly
Other C-Suite Officer, please specify (Executive vice president of Manufacturing Operations)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Other C-Suite Officer, please specify (Executive vice president of Research & Development)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Chief Risks Officer (CRO)	<Not Applicable>	Other, please specify (Assessing and managing climate-related risks)	<Not Applicable>	Annually
Chief Sustainability Officer (CSO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Other C-Suite Officer, please specify (Chief Strategy Officer)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually
Other, please specify (Research and Development Strategy Committee)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Annually

C1.2a

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

The CEO oversees the strategy for external engagement on sustainable mobility and decarbonizing transport. The latter is the most material climate change issue for Michelin. The CEO is assisted by the Chief Sustainability Officer to monitor climate-related issues with a focus on identifying and developing opportunities for external partnerships and relations covering a diverse set of mobility ecosystems that are working on 2 fronts: 1) accelerating the systemic transformation of mobility into a "net zero emissions" system before 2050; and 2) actively putting in place new approaches to low-carbon and lower impact mobility. They are supported by internal experts representing Michelin in public-private sustainable mobility initiatives (Sustainable Mobility for All, Transport Decarbonization Alliance, International Transport Forum, among others) and internal and external experts involved in Michelin-developed ecosystems for sustainable mobility (Movin'On, the world's leading ecosystem of strategic anticipation and co-innovation for sustainable mobility). These same experts identify and manage risks regarding corporate engagement and reputation, in consultation with the Chief Sustainability Officer and the CEO.

The General Manager has 2 main functions: 1) to oversee all issues related to sustainable finance, including implementation of the recommendations of the Task Force on Climate-related Financial Disclosure and the EU Sustainable Finance regulation; 2) to ensure that the management systems in place for climate-related risks and opportunities are reviewed by the Supervisory Board's CSR Committee. These functions are supported by the Chief Sustainability Officer.

The positions of executive VP of manufacturing operations and executive VP of research and development, both members of the Group Executive Committee (GEC or management board), serve as co-chairs of the **Environmental Governance**, which operates under auspices the Group Management Committee (GMC), and as such they are empowered to make decisions for the GMC as a whole. Meeting twice a year at a minimum, **the Environmental Governance** oversees all climate-related issues impacting operations. They are assisted by the members of the Environmental Governance: chief procurement officer, chief risk officer, corporate EHS/Security manager, chief sustainability officer, 2 vice-presidents of research and development, vice president of the advanced materials division, and norms and regulations manager. The 2 executive vice president chairs, supported by the transverse expertise of the members, jointly monitor climate-related issues with a focus on assessing their potential impacts to internal operations – manufacturing, 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 Environmental 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-related risks, opportunities and investments impacting operations that are not made by the GMC are made by the Environmental Governance. 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.

The Chief Risk Officer reports to the GMC on climate-related risks in coordination with the Environmental Governance, which itself oversees climate-related audits and internal control.

The Chief Strategy Officer ensures that the annual strategic planning process overseen by the GEC incorporates the key inputs and outputs so that climate-related risks and opportunities are taken into account in the 5-year strategic plans of business units, operating/support departments and regions. In addition, provides ad hoc support to the CEG on strategic questions relating to climate change. The Chief Sustainability Officer and Chief Financial Officer and their team supports this process.

The Research and Development Strategy Committee, a cross-functional panel of executives from research and development, manufacturing and business units, decides on which low-carbon products and services that will move from research and development phases to commercial offers. As such, it provides key inputs to the strategic planning process.

C1.3

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

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

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Chief Executive Officer (CEO)	Monetary reward	Other (please specify) (Worldwide deployment of a transformation program to reach 2030 environmental targets, including reduction of Scopes 1, 2 and 3 CO2 emissions)	A portion (2% of profit share) of the CEO's annual incentive bonus is indexed to the implementation of 6 transformation programs, including one for achieving a set of 2030 environmental targets.
Other, please specify (General Manager)	Monetary reward	Other (please specify) (Worldwide deployment of a transformation program to reach 2030 environmental targets, including reduction of Scopes 1, 2 and 3 CO2 emissions)	A portion of the General Manager's annual incentive bonus is indexed to the implementation of 6 transformation programs, including one for achieving a set of 2030 environmental targets.
Other, please specify (General Manager)	Monetary reward	Emissions reduction target	A portion (20%) of the General Manager's long-term deferred incentive bonus is indexed to the reduction of the industrial Michelin Environmental Performance indicator, including a sub-indicator for reducing Scopes 1 & 2 CO2 emissions.
Other, please specify (R&D employees and managers)	Monetary reward	Efficiency project	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 energy efficiency is one of several tire performance indicators that drive product design and is measured by a rolling resistance indicator.
Management group	Monetary reward	Emissions reduction project	A worldwide 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.
All employees	Monetary reward	Emissions reduction target	As of 2022 the variable remuneration system was announced for worldwide application includes CO2 absolute value reduction targets covering Scopes 1&2 and Scope 3/Logistics operations.
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction target	A portion (20%) of the CEO's long-term deferred incentive bonus is indexed to the reduction of the industrial Michelin Environmental Performance indicator, including a sub-indicator for reducing Scopes 1 & 2 CO2 emissions.

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	0	5	This time horizon is aligned with operations/support divisions' management of operational risks and business units' management of 5-year business plans. 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 operational 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 the Movin'on ecosystem (Movin'on Summit and Movin'on LAB) and the Transport Decarbonization Alliance; 10) managing SBTi-approved targets for raw materials suppliers; 11) R&D projects and partnerships for energy-efficient materials, products and services; 12) stakeholder materiality assessments.
Medium-term	6	15	This time horizon is aligned with operations/support divisions' management of strategic risks and business units' management of strategic planning. 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; 6) climate change scenarios analysis by business units, operations/support divisions and the Group Executive Committee (GEC) in line with the recommendations of the Task Force on Climate-related Financial Disclosure; 7) managing SBTi-approved targets for manufacturing and upstream and downstream supply chain; 8) assessing physical risks of climate change and developing adaptation plans; 9) supporting actions for reducing GHG emissions from transport and related UN Sustainable Development Goals under the Sum4All consortium (https://www.sum4all.org/who-we-are) and through the Transport Decarbonization Alliance (TDA, https://tda-mobility.org/).
Long-term	16	30	This time horizon applies to 1) developing a corporate SBT roadmap under a below 2 °C and 1.5 °C scenarios for long-term reductions to CO2 emissions from manufacturing and upstream and downstream value chain activities; 2) climate change scenarios analysis by business units, operations/support divisions and the Group Executive Committee (GEC) in line with the recommendations of the Task Force on Climate-related Financial Disclosure; 3) assessing physical risks of climate change and developing adaptation plans.

C2.1b

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

For Michelin, a risk corresponds to the possibility of an event occurring, regardless of the probability of occurrence, whose consequences could affect its objectives, particularly as concerns its financial position, reputation or impact on people or the environment. A substantive financial or strategic impact on business is defined by the Group Management Committee (GMC) as a risk that has an adverse effect on annual operating income (low risk = less than 150 M €, medium risk = between 150 M and 400 M €, high risk = more than 400 M €). For opportunities, no hard-and-fast threshold exists. The portfolio of opportunities is developed through an array of programs and initiatives (see C2.2) and managed by business units in their strategic planning process. Anticipated positive impacts for major initiatives are announced annually in Michelin's strategic plan as communicated through its annual financial and sustainability report. Smaller initiatives are developed in incubation mode or as business ventures.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Risk management framework: Michelin's enterprise risk management (ERM) framework is based on a thorough review of risks that could have a material adverse effect on operations, financial position, reputation or impact on people or the environment. It is in line with the standards set by the Committee of Sponsoring Organizations of the Treadway Commission. The risk map is comprised of 14 risk families which are the basis for reassessing risks, identifying emerging risks and steering risk reduction actions. It is reviewed annually by the Group Executive Committee (GEC). Climate-related risks are evaluated over the short-, medium- and long-term. Responsibility: The process is steered by the Corporate Risk Department involving a/ bottom-up risk assessment, b/ external risk watch and c/ internal audit, culminating in a status report and recommendations to the GEC. Each operational and business entity establishes and updates its risk portfolio and sets its action plans. Results are reviewed and approved by the designated risk governance committees covering the risk map. All climate-related risks and opportunities related to operations are reviewed by the Environmental Governance, while those related to products and services are overseen at a minimum in the annual strategic planning process by the GEC and on an ad-hoc basis. The GEC oversees the risk management process, regularly reviewing risks with a substantive financial or strategic net impact. The Supervisory Board Audit Committee checks the effectiveness of the management process. Status of climate-related risks: The ERM process can trigger significant updates of risk families, as was the case for the environmental risk family, completely overhauled and aligned with TCFD risks in 2020. As a result, 5 climate-related risk factors were identified as relevant: a new risk factor 1) acute and chronic physical impacts of climate change on continuity of operations and raw material/components supplies; and 4 existing risk factors 2) legal/regulatory non-compliance/cost of compliance (e.g., CO2 quotas); 3) impact on reputation from inability to meet environmental commitments (e.g., failure to meet voluntary CO2 reduction targets); 4) failure to anticipate scientific/technological and societal/market changes (e.g., new forms of mobility of people and goods); 5) media or NGO attack regarding CSR policies (e.g., greenwashing CO2 performance claims). The first 3 risks above represent potential substantive financial or strategic impacts and are thus reported in C2.3a. The newest risk factor "acute and chronic physical impacts of climate change on continuity of operations and raw material/components supplies" underwent a company-wide internal audit in 2021 to map systemic risks. Audit follow-up involves applying forward-looking climate scenarios to physical assets and key raw materials to determine the maximum financial impact. These are the first steps in an iterative risk management process to understand the complexities of physical risks, decide on acceptable risk level, apply risk reduction measures and monitor & check. CASE STUDY ON PHYSICAL RISKS: The potential impact from increased severity and frequency of extreme weather on the availability of raw materials and components was identified as a risk factor 10 years ago through bottom-up risk assessment and added as a potential cause of supply disruption in the Corporate Purchasing Department risk portfolio. The risk response involves a/ training employees on improving risk planning, b/ diversifying the supplier base, c/ maintaining strategic buffer inventory for critical products, d/ seeking substitute products for scarce commodities. The internal audit cited above provided an estimate of the maximum potential impact related to upstream supply chain disruptions. Climate change scenarios now are being applied to determine specific vulnerabilities and opportunities for adaptation/resilience measures. Risks and opportunities for business units: A flexible approach empowers business units to use the available resources to identify, assess and act on opportunities and risks under Michelin's "All Sustainable Approach" to reach carbon neutrality in 2050 for own operations and enable decarbonization for downstream users of products and services. The high-priority opportunities and risks are incorporated into their 5-year (short-term) strategic plans which are reviewed and approved on an annual basis by the GEC. The strategic planning process is steered by the Corporate Strategy Department. Inputs and insights to support short- and medium-term strategic planning by business units are drawn from: 1) Corporate Innovation Board (CIB)—defines the innovation strategy from a cross-functional perspective to focus research priorities, obtain rapid customer/market feedback, and accelerate innovation/incubation stages. 2) Advanced research teams—pursue projects validated by the CIB or GEC, often with external partnerships to complement in-house expertise. 3) Strategic Foresight team—provides climate scenario analysis tools and forward-looking business trends analysis covering climate change issues. 4) Michelin Innovation Lab (MIL)—develops non-tire growth opportunities. 5) Public Affairs—anticipates regulatory changes related to CO2 emissions and low-carbon products; 6) Norms & Regulations—develops and implements strategies to set common industry/sector rules to promote low-carbon products and services; 7) Movin'on ecosystem (<https://summit.movinonconnect.com/>)—Michelin-created sustainable mobility ecosystem over 30 corporate and institutional partners and an array of private and public actors for enabling business model development around decarbonization of the mobility sector, transport system efficiency, multimodal mobility and preserving resources. The main opportunities having substantive financial or strategic impacts are reported in C2.4a. CASE STUDY ON TRANSITION OPPORTUNITY: The maritime transport industry's need to decarbonize is driving Michelin's innovation in wind-powered solutions for freight and passenger ships: WISAMO, an inflatable sail installed on existing or new ships to harness wind energy, delivering 10-20% CO2 reductions. The GEC set materials innovation as a strategic growth area; the CIB defined research priorities in non-road mobility. A French-Swiss R&D advanced research team collaborated with external partners to develop WISAMO. As of 2020, MIL manages the project from incubation to a commercial offer. Following the WISAMO launch at the 2021 Movin'on Summit, external partners play a key role in confirming the technological and business model. Navigator Michel Desjoyeaux conducted extensive tests in winter maritime conditions in early 2022, following an initial phase of testing on Lake Neuchâtel in 2021. The Compagnie Maritime Nantaise - MN is supporting testing in 2022 on merchant ships running between England, France and Spain.

C2.2a

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

	Relevance & Inclusion	Please explain
Current regulation	Relevant, always included	Michelin is subject to regulations including but not limited to a/ CO2 emissions reporting in multiple countries, b/ energy regulation & taxation in multiple countries, c/ EU Emissions Trading Scheme (ETS), d/ China ETS, e/ EU Taxonomy Regulation. Due to the significance of such regulations to our business, topic specialists at the corporate and regional levels closely monitor and assess risks associated with any changes through their inclusion in our Enterprise Risk Management process. Operating costs are primarily impacted by the EU ETS, which are projected to increase from 9.4M€ in 2021 to 18.5M€ in 2025. Example of a specific risk considered: 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 Management Committee, established in 2005 and bringing together specialists at both corporate and applicable country levels in greenhouse gases (GHG), energy buying, energy efficiency, finance and accounting. The committee monitors CO2 allowances applied under the EU and Chinese regulations cited above and their current and forecasted costs and makes recommendations to the corporate head of finance on optimal management of allowances.
Emerging regulation	Relevant, always included	We continually monitor, review, and assess proposed and upcoming regulatory change to mitigate and manage potential impacts on our business and operations, particularly on decisions about products and their design and managing additional costs impacting manufacturing and logistics. The main risks are related to a/ CO2 emissions and climate strategy reporting (examples are the EU Fit for 55 and EU Corporate Responsibility Reporting Directive, b/ energy regulation & taxation, c/ expanded emissions trading systems, d/ product energy performance standards. Due to the significance of such regulations to our business, topic specialists at the corporate and regional levels closely monitor and assess risks associated with any changes through their inclusion in our Enterprise Risk Management process. Example of a specific risk considered: 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.
Technology	Relevant, always included	Technology is deemed a relevant risk for 2 reasons: increasing pressures to improve the sustainability of the transport of people and goods and because of rapid changes to forms and usage of mobility systems, both individual and collective. Failure to innovate effectively or use technological advancements to make our products and operations more sustainable may decrease our competitive abilities, impacting sales and growth. Example of a specific risk considered: whether to enter into vehicle electrification market, a complex & dynamic yet fragmented global market with diverse players and competitors in a rapidly changing technological environment. Michelin has been developing hydrogen fuel cell technologies, partnerships and business models for over 15 years, with risk and opportunity assessments conducted at each stage, thus shaping a 2019 decision with Faurecia to create a joint venture for Symbio to become a world leader in hydrogen fuel cell systems as a technology partner to OEMs and sustainable mobility decision makers. In 2022, a key technological synergy was secured with a joint venture between Symbio and Schaeffler to produce fuel cell bipolar plates for global mobility and energy solutions.
Legal	Relevant, always included	As a provider of vehicle equipment and services, climate-related legal risks mainly stem from false performance claims, which is particularly relevant to the car manufacturing sector as a whole, in a post-"diesel-gate" context. Legal risks are monitored and assessed at the both the corporate and entity-level through a worldwide network of legal specialists through their inclusion in our Enterprise Risk Management process. Example of a specific risk considered: As regulations are promulgated on CO2 tailpipe emissions standards, compliance is relevant for vehicle manufacturers, but not for tire manufacturer like Michelin. Yet because tire rolling resistance contributes significantly to vehicle energy efficiency and therefore to reducing CO2 emissions generated by the vehicle, Michelin does strongly advocate for the use of real rolling resistance values, for the use of measurement methods that are as representative as possible of the actual use conditions, and not just theoretical values, in the determination of vehicle CO2 emissions. The reliability of CO2 measurements is critical for ensuring transparency and reducing legal liability, direct or indirect. Example of a specific risk considered: New product launches involve extensive publicity campaigns with performance claims. Companies must comply with regulations on truthful advertising and publicity. Michelin assesses and manages risks of this nature to ensure that product launches are accompanied by ad campaigns that are compliant with regulations, as well as governmental policy and recommendations, and void of unsupported performance claims.
Market	Relevant, always included	Market risks are relevant for 3 reasons: a/ B2B customers - an increasing number are including climate-related (e.g., net zero) 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; b/ investors - an increasing number are requesting information on CO2 emissions and decarbonization strategy; c/ in the diversified B2C markets, consumers' behavior on preferred modes of mobility are rapidly evolving. An inability to meet changing consumer demands could impact upon our ability to win work and ultimately our revenues and reputation. Market risks are assessed by business units with support from several departments (e.g., corporate sustainability, EHS, strategic anticipation, norms & regulations, public affairs, purchasing) with decisions made on substantive risks within the Enterprise Risk Management process, or turning risks into opportunities through the strategic planning process. Example of a specific risk considered: Following requests from several OEMs to supply tires produced in net-zero CO2 production systems, a process was put in place to develop the necessary production capacity over the short- and medium-term. Market risks are assessed by business units with support from several departments: corporate sustainability, strategic anticipation, norms & regulations, public affairs, purchasing. Jointly they also assess the level of risks, with the business units deciding on how to manage them. All decisions on market risks that are evaluated above the thresholds for substantive Group-level risks are made by the business units whose respective risk management plans and 5-year strategic plans are overseen and approved by the Group Executive Committee (management board) through the annual strategy planning process.
Reputation	Relevant, always included	As an international company with a worldwide presence in the automobile and mobility sector, the two main risks are 1) failure to communicate transparently on product or operational performance, resulting in claims of greenwashing from the public at large or from watchdog organizations; and 2) failure to demonstrate responsibility regarding climate change mitigation, resulting in an impact on our share price (through investor confidence) and sales (through tendering processes which require clear sustainability credentials). Example of specific risk considered: Media criticism or even attacks from non-governmental organizations, both in the traditional press and on social network platforms. Due to the potential impact from reputational risks, topic specialists at the corporate and regional levels closely monitor and assess risks associated with any changes through their inclusion in our Enterprise Risk Management process.
Acute physical	Relevant, always included	Because our company operates worldwide, acute climate risks in the form of extreme weather events have the potential to significantly impact operational assets and supply chain processes. Such events could create unsafe conditions for employees, delays in our supply chain, and/or our ability to supply our customers. Consequences could include an impact upon our cash flow and/or brand reputation. As an emerging risk, acute physical impacts are in the process of being integrated in our Enterprise Risk Management process. In parallel, opportunities to meet societal needs for safe mobility during extreme weather events, for example, are addressed in the strategic planning process. Example of a specific risk considered: monsoon flooding in Asia and tornadoes in North America impact our employees' ability to travel to work safely, damage assets and disrupt operations, requiring emergency management plans adapted to each location, and vulnerability assessments to determine prevention actions for increased resilience.
Chronic physical	Relevant, always included	Long-term changes to earth systems from climate change present both risks and opportunities for our business, with physical assets located on every continent and significant geographical coverage throughout the supply chain. This could cause increased costs in our supply chain and operations, loss of revenue but also new revenue streams. As an emerging risk, chronic physical impacts are in the process of being integrated in our Enterprise Risk Management process. In parallel, opportunities to meet societal needs for safe mobility in the context of long-term environmental trends and societal changes are considered over through our strategic anticipation process. Example of a specific risk considered: as global temperatures rise the 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. Geographic areas of optimum versus suitable rubber production will evolve. Current predictions, however, involve long-term hypotheses with high levels of uncertainty, requiring a diversified and agile global management method.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Market	Other, please specify (Changing shareholder and customer requirements)
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Primary potential financial impact

Other, please specify (Decreased operating income due to higher cost of capital and/or decreased revenues due to reduced demand for products)

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

RISK DRIVER: The number of questions from shareholders and customers relating to net zero GHG emissions has significantly increased in number and specificity since 2019. Failure to achieve "net zero" could therefore present a risk to our ability to win new contracts and/or retain shareholders. This risk driver is reflected in one of the top 11 risk factors for the Group, published in the annual report -- 2021 Universal Registration Document: "Inadequate management of environmental impacts", specifically including transition risks related to climate change, from an external stakeholder perspective. The potential impacts of this risk for Michelin stem from two scenarios: 1) that the pace of decarbonization of overall operations, with regards to investors, and at certain production plants, with regards to customers, is not sufficient to retain their capital or their business, respectively; 2) that corporate reporting and information provided externally is not sufficient to ensure institutional investors and customers that Michelin is preparing a net-zero transition. COMPANY-SPECIFIC CASE STUDY - SHAREHOLDERS: The number of questions Michelin has received from its institutional shareholders on its 1) carbon trajectory being aligned with the Paris Agreement and 2) capex requirements to achieve decarbonization has more than tripled since 2019. COMPANY-SPECIFIC CASE STUDY - CUSTOMERS: In the last year, the Group received specific requests from 8 OEM customers, with worldwide operations, for Michelin to align with their own net-zero objectives by ensuring net-zero emissions in the production of tires (Scopes 1 and 2). Example: In 2020 Mercedes-Benz, a founding member of the Transform to Net Zero initiative, issued a letter of intent to its partners and suppliers, including Michelin, requiring the provision of CO2-neutral products effective 2039. This trend has continued with specific requests from these OEMs with the obligation to guarantee a certain level of decarbonization linked to the products sold, with detailed roadmaps to achieve targets. GEOGRAPHICAL IMPACT: This could potentially impact manufacturing operations at over one third of the production base located in the EU, Canada, the United States, Mexico, Brazil, Thailand and China.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

400000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The figure reported is the upper threshold for a medium-level Group risk (see C2.1b). As such, it is an initial estimation made following a major update of the Group risk map in 2020. It encompasses not only the climate change-related risk factor reported here but also all other environmental risk factors in scenarios involving corporate policy not meeting external stakeholder expectations. It therefore represents their combined impacts on operational results from higher cost of capital, loss of revenues from B2B and B2C customers, and outlays for environmental reparations. Moving forward, this particular risk factor stemming from expectations for net zero emissions will be refined in terms of impact scenarios and their potential financial consequences. Estimating financial consequences is an iterative process that requires taking in new information and refining.

Cost of response to risk

62000000

Description of response and explanation of cost calculation

MANAGEMENT OF RISK: 1) The risk is mitigated by a CO2 reduction roadmap and oversight. In 2020 the Environmental Governance (EG) approved a CO2 reduction trajectory for Scopes 1 & 2 to achieve net zero emissions by 2050, covering the worldwide manufacturing base. It also approved the technical-financial roadmap to achieve the interim target of -50% from 2010 to 2030. The actionable levers for decarbonization are a/ improving energy efficiency (11 distinct energy efficiency initiatives covering insulation, electrification, closed loops, leak prevention, metering, and process efficiency), b/ reducing the CO2 emission factor (renewable energy, both purchased and on/off-site projects, coal phase-out at 5 plants), c/ scoping out long-term carbon capture and storage opportunities. To support implementation, the EG approved an internal carbon price increase for capex projects from 50 to 100 €/tonne in early 2021. Roadmap implementation is overseen by a network of on-site energy experts and the corporate Energy and CO2 Mitigation Expert Team (EEECO2) which reports on progress 2-3x/yr to the EG. All key decisions and outstanding issues are reviewed at least 3x/yr between the Group Management Committee and the Group Executive Committee. The Supervisory Board CSR Committee provides an additional high-level review of the CO2 reduction strategy. 2) The risk is controlled by transparently communicating with investors and customers: a/ replies to all investor questions submitted prior to the annual shareholder meeting are published at www.michelin.com, b/ all CO2 targets are communicated to shareholders prior to or during the annual shareholder meeting, c/ a new sustainability web site was launched in 2021 that covers the climate change strategy, d/ the OEM business team increased its staffing to better handle CO2 reduction requests from its customers. CASE STUDY: To reinforce shareholder confidence Michelin signed a EUR 2.5bn Multicurrency Revolving Credit Facility with 19 banks in October 2020, amended and restated in 2021, linking its pricing to a set of 3 "Sustainability Performance Targets" among which is the reduction of Scope 1&2 greenhouse gas emissions. EXPLANATION OF COSTS OF MANAGEMENT: Estimated 54 M€ in average annual capex for energy efficiency projects and coal phase-out from 2022-2030; estimated 5 M€ in annual Opex overcost for procuring renewable energy; 3 M€ in full-time equivalent staffing annually (57 FTE at an average cost 51.7 k€).

Comment**Identifier**

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms
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Primary potential financial impact

Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

RISK DRIVER: Michelin manufacturing operations are subject to carbon taxes and CO2 allowances. Failure to manage the cost of regulatory compliance could drive up operating costs. COMPANY-SPECIFIC CASE STUDY: The European Emissions Trading System (ETS) closed out Phase III in 2020 and entered Phase IV 2021-2025/2026-2030. Phase IV brings an end to the status of "sector exposed to a significant risk of carbon leakage" for the tire industry. For Michelin this translates to a 75% reduction of free CO2 quotas in 2021 compared to 2020, and drawing down to zero free quotas in 2030, with the exception of one production site that will retain its protected status. Forecasting indicates that the CO2 market average price will increase from 55 €/t in 2021 to 93 €/t in 2026. Even with 3 sites exiting the EU ETS in 2021 (1 in Spain and 2 in France), the residual costs for the 15 production sites regulated by the EU ETS could represent about 1/3 of estimated annual capex required to reduce CO2 emissions across the worldwide manufacturing base, making this a relevant risk. While this risk is not among Michelin's top 11 risk factors, it is part of the Group risk map as a regulatory compliance scenario in the environmental risk family "Inadequate management of environmental impacts" and is thus subject to a managed process and oversight. GEOGRAPHICAL IMPACT: Carbon tax in France on the purchase of natural gas and coal covering about 15% of worldwide Scope 1 emissions from 11 production sites and 1 R&D site in France; CO2 allowance systems in two jurisdictions -- 15 sites production sites in the European Union and 2 in Shanghai.

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)

9300000

Potential financial impact figure – maximum (currency)

18500000

Explanation of financial impact figure

The figures represent the estimated annual costs of CO2 allowances from 2021 (minimum impact figure) to 2025 (maximum impact figure). The estimates are based on: 1) projected reductions in CO2 emissions within the scope of 15 concerned plants, taking into account the planned exit of several manufacturing plants from the EU ETS as well as a major energy operational modification at the site in Poland; 2) the sharp reduction of CO2 allowances attributed at no cost, applying the new rules of the EU ETS Phase IV, particularly regarding reduction of exposed sectors; 3) the forecasted annual costs of CO2 allowances in the EU ETS market; 4) optimizing options for banking, pooling, purchasing and selling. There is not a simplified formula that can be presented here. The figures are a result of data collection, analysis and hypothesis-based projections.

Cost of response to risk

100000

Description of response and explanation of cost calculation

MANAGEMENT OF RISK: Mitigation and control. The main mitigation measure is to continually reduce CO2 emissions to decrease the number of CO2 allowances required, as detailed in risk 1. The second mitigation measure is to correctly apply the complex set of EU ETS rules to minimize the cost of purchasing CO2 allowances. This along with controlling the risks are under the responsibility of the CO2 Allowances Management Committee (CO2AMC), created in 2005. Comprising specialists in greenhouse gases (GHG), energy buying, energy efficiency, finance and accounting, its role is to define principles and guidelines of CO2 allowances management, ensure their proper application, regularly consolidate and review CO2 allowances and emissions, track legislation governing carbon markets and taxes in all Michelin host countries, conduct the necessary forecasting studies on allowances and costs, 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 for short- and medium-term time horizons, supported by the public affairs department to anticipate regulatory changes and publication of guidelines. Any issues not resolved by the corporate finance department would be taken to the Environmental Governance body and, if necessary, to the Group Management Committee for final decision. CASE STUDY: An example of controlling risks is the preparation done from 2018 to 2020 for the start of Phase IV in 2021: 1) taking into account all 3rd party verification reports on maintaining robust CO2 measurements, monitoring and accounting at 15 plants in Spain, France, Italy, Germany, Poland and Romania; 2) factoring in the rules for annually lowering the allowance ceiling, revising applicable technological benchmarks, applying the criteria for exposed sectors; 3) centralizing and streamlining the process of purchasing CO2 allowances in order to anticipate and lower costs through economies of scale. The result was an optimization of the CO2 allowances management process under which residual costs were accepted and budgeted for 2021 and anticipated through 2025. EXPLANATION OF COSTS OF MANAGEMENT: The estimation represents 2 full-time equivalent personnel per year covering the CO2AMC and site- and EU-level specialists coordinating bottom-up CO2 emissions monitoring and allowances accounting. The average cost for 1 FTE in 2021 was 51,700 €.

Comment**Identifier**

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Other, please specify (Cold wave/frost, typhoon, fluvial flooding, tornado, drought)
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Primary potential financial impact

Other, please specify (Decreased revenues due to reduced production capacity)

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

RISK DRIVER: Michelin has a worldwide customer base and operations that could be significantly impacted by higher frequency of storms, floods, drought and other natural hazards exacerbated by climate change. Failure to adapt to these conditions could cause delays in our supply chain and operations and impact upon our cash flow and

revenues. The activities that could be materially impacted by a severe weather event are raw material sourcing, manufacturing and logistics operations. Acute physical risk was managed under "natural disasters", applying an operational site risk approach until 2020 when it was integrated in the Group risk map as climate change-driven. Following an internal audit in 2021, it was recognized as a systemic risk, given 1) wide exposure to a variety of impacts that could severely disrupt supplies, production operations or demand, with major impacts in terms of quantities, diversity of sources and duration and 2) the many interdependent factors necessary for the manufacture of its products (infrastructure, energy, availability of labor, transportation systems, etc.). For these reasons it was placed in Michelin's top 11 risk factors, thus subject to a managed process, Group Executive Committee and Supervisory Board oversight and regulatory reporting. COMPANY SPECIFIC CASE STUDY: Recurring drought in southern Brazil has brought risk of water shortages potentially affecting Michelin manufacturing sites in Campo Grande and Resende. From 2014 to 2016, actions were taken to increase water autonomy: 3x more days at the Resende site, and 2x more days at the Campo Grande site. Measures taken include closing water circuits, reducing evaporation, capturing rainwater, and conducting employee training on water conservation practices, at a cost of 450 k€. GEOGRAPHICAL EXAMPLES: Several Michelin facilities have been impacted in the past 10 years in different geographic regions: more frequent typhoon flooding in the districts surrounding Bangkok, Thailand where 3 plants are located; monsoon flooding the Chennai, India plant in 2015; tornado corridor in the US shifting eastward where more plants are located. Several supplier sites on the US Gulf Coast have also been impacted, for example during the North American hurricane season in 2017. Some transport costs have increased due to reduced capacity for barge transport of industrial goods on the Rhine River, which has been at historically low levels in 3 of the last 5 years due to drought.

Time horizon

Short-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)

150000000

Potential financial impact figure – maximum (currency)

400000000

Explanation of financial impact figure

Applying internal rules for financial impacts of systemic risks, the figures presented here are the lower and upper thresholds for a medium-level Group risk (see C2.1b). This level of risk was attributed following a group-wide audit on physical climate risks concluded in 2021 and which confirmed that the risks are systemic*: given Michelin's global reach, in terms of both its industrial facilities and supply chain as well as the many interdependent factors necessary for the manufacture of its products (infrastructure, energy, availability of labor, transportation systems, etc.), there is wide exposure to a variety of impacts that could severely disrupt supplies, production operations or demand, with major impacts in terms of quantities, diversity of sources and duration. Acute physical risks are a recognized emerging risk for which a precise financial impact at Group level has not yet been determined. The financial impact in any given year could be significantly lower than the minimum figure provided. Acute physical climate risks are in the process of being iteratively evaluated with state-of-the-art modeling combined with priority-based assessments of asset and supply chain vulnerability. The potential financial impacts will be refined over time as physical climate scenarios are evaluated and vulnerability of direct and indirect operations better understood. *The systemic risk takes into account external events that are not already considered in relation to standard supply chain or manufacturing disruption risks.

Cost of response to risk

415000

Description of response and explanation of cost calculation

MANAGEMENT OF RISK: Mitigation, control and transfer of residual risk via insurance or acceptance - see points 1 and 2 below. Added to the Group risk map in 2020 as a systemic risk, it is managed under the ERM process: a/ a corporate-wide audit to determine maximum possible impact, current risk management practices and residual risk, concluded in 2021; b/ proof of concept risk evaluation in 2021-2022 conducted by an expert third party to develop a risk & asset vulnerability evaluation methodology adapted to Michelin activities and covering 2 time horizons (2030 and 2050) and 2 global warming scenarios (RCP 4.5 and RCP 8.5). The risk scoring tool was validated in 2022 by the Environmental Governance for deployment to physical assets, supply chain and new activities based on vulnerability priorities. It will enable more comprehensive and long-term adaptation measures to be identified and implemented. 1) Mitigation and control - The corporate purchasing department maintains business continuity plans which a/ ensure a diversity of suppliers in number and location for each type of raw material; b/ include a regular review of vulnerability to energy supply disruptions. CASE STUDY: Hurricane Harvey in 2017 - Michelin worked with its suppliers in other regions to provide the necessary raw materials with no disruption. 2) Mitigation, control and transfer: With production plants located across 25 countries and 5 continents, extreme weather events patterns have thus far impacted only a few facilities for less than 1 month, with non-material impacts. Back-up supplies of finished products can be delivered from other geographic zones, thus limiting risk of shortages. Residual risks are transferred via insurance policies. Based on the hypothesis that past extreme weather events will increase in frequency, duration and force, business continuity plans will be reevaluated periodically. CASE STUDY: To control risks following the 2015 monsoon in India, the Chennai plant reinforced emergency management protocols and revised personnel policies to increase the number of employees hired from neighboring locations that remain accessible during flooding, thereby ensuring production continuity. EXPLANATION OF COSTS OF MANAGEMENT: The estimated cost represents 8 FTE required annually (regional and purchasing risk management, site personnel to manage business continuity plans and in-house insurance specialists). The cost of 8 FTE in 2021 was 415 k€. Insurance costs: confidential.

Comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Climate change, air pollution, massive urbanization and traffic congestion are leading to strong governmental regulations and to increasing pressure to reduce the environmental impact of mobility. As a result, the needs of our customers around the world are changing at an accelerated pace: the Green Deal in Europe, China's plan for net zero emissions in 2060 and a renewed focus in North America are some examples of the drivers of the change that is impacting the mobility landscape. To comply with increasingly demanding regulations on CO2 emissions, car manufacturers are accelerating the electrification of their vehicles. In 2025, 30% of new vehicles worldwide will be electrified. Multidimensional performances required by an Electric Vehicle (EV) fully plays into Michelin's strengths: 1/To maximize battery range, EV need low rolling resistance (RR) tires: Over the past twenty years, Michelin has improved the energy efficiency of its passenger car tire portfolio by more than 20% with no compromise on safety and longevity. 2/To support the weight of batteries, the EV need larger seat size tires, or the same seat size tire but with higher load carrying capacity. In either case, Michelin tires offer not only low RR, but the durability to withstand the extra weight of the vehicle. 3/EV exhibit high and continuous levels of torque. Higher torque levels create greater demands on both the wear life and durability of a tire. Michelin's historic leadership and expertise in durability and wear will become an even more important differentiator in satisfying the performance requirements. 4/Michelin is addressing additional performances like MICHELIN ACOUSTIC, a foam which reduces interior noise. Michelin has adapted its tire offers for the EV market with MICHELIN ENERGY™ EV tire being the first step in a joint R&D program with Renault ZOE. In 2020 R&D teams worked on two eco-designed projects adapted to EVs : The MICHELIN e.Primacy and the Michelin Pilot Sport EV which have been developed with a complete product life cycle analysis. MICHELIN Pilot Sport EV was launched in February 2021, it is the first tire in the Pilot Sport family purpose engineered for electric sports cars. Michelin also announced the roll-out of the MICHELIN X Incity EV Z tire, the Group's first family of tires designed specifically for electric buses. With the new ranges, Michelin is supporting the transition towards cleaner, more efficient and longer-range electric mobility solutions.

Time horizon

Short-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)

550000000

Potential financial impact figure – maximum (currency)

1100000000

Explanation of financial impact figure

The global tire market was estimated at US\$ 167 billion in 2019, with light-vehicle tires accounting for 60% for a total market segment worth US\$100 billion. Michelin's market share was 15%. We estimate that electrified vehicles will account for approximately 45% of the global passenger cars sales worldwide in 2030 (source: Michelin estimation, 2021 full-year results publication). On this segment, Michelin currently has a market share in original equipment that is 1.5 times higher than our total original equipment market share. We estimate that the loyalty to the Michelin brand for further tire purchases will be higher in electrified vehicles than for ICE vehicles as consumers will perceive the benefits brought by their tires on their driving experience in EV. We take the hypothesis that Michelin's market share on the electrified-cars market could reach from 17,5% (minimum hypothesis) to 22% (maximum hypothesis) on this segment. This could lead to an increase in earnings from US\$ 550 million (minimum hypothesis) to US\$ 1.1 billion (maximum hypothesis)

Cost to realize opportunity

682000000

Strategy to realize opportunity and explanation of cost calculation

Environmental concerns are of critical importance to all Michelin's customers and they are at the core of Michelin's strategy, as expressed in its vision that "Tomorrow, at Michelin, everything will be sustainable". The rapid electrification of the vehicle parc brings with it a demanding balance of performance for tires: rolling resistance to improve battery range, increased wear life to meet higher torque levels, higher load capacity and/or seat sizes to support battery weight/size, solutions to improve interior noise, while reducing environmental impact. CASE STUDY: Michelin R&D teams are currently working on specific projects to improve the rolling resistance of tires. The aim is to make them 20% more energy-efficient by 2030 compared to 2010. Michelin is also developing solutions to use renewable or recycled materials to manufacture its tires, while enhancing their performance even more. Moreover, Michelin's HLC (High Load Capacity) tyres will continue to contribute to increasing OEMs' efficiency by enabling vehicles to carry heavy batteries for their new developed EVs. In 2021, Michelin expanded its leadership by launching two tirelines adapted to EVs: the MICHELIN PILOT SPORT EV, the first Sport tire designed for electric vehicles, and the Michelin e.PRIMACY, the first tire on the market, which is accompanied by an Environmental Product Declaration (EPD). Vehicle manufacturers are looking for more than just a set of tire performances that allow them to meet demanding governmental regulations. They are also looking for partners that can help them decrease their overall environmental footprint. Michelin is a leader in this domain as well and is out front in areas such as the integration of sustainable materials into its tires, carbon neutrality of its factories and innovative design choices driven by Life Cycle Assessments. Furthermore, convinced that hydrogen is an optimized solution to reduce environmental footprint, Michelin develops partnerships with major players of this market. The cost to realize opportunity in 2021 corresponds to R&D expenses that stood at €682 million.

Comment**Identifier**

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

In an optimistic climate warming scenario, it is expected that there will be increased consumer awareness around sustainability and increased demand for sustainable products. In addition, it is expected that regulation and policy requiring companies to reduce carbon emissions will also increase demand for sustainable products. The EY Future Consumer Index shows that consumers are increasingly mindful of their impact on the planet. They are choosing to make more sustainable purchases. 56% will pay more attention to the environmental impact of what they purchase. In the tire category, consumers are also increasingly concerned about reducing fuel costs and are interested in the role energy efficient tires can play in helping them save money. Otherwise, with growing urbanization, limited access to cities and the development of vehicle sharing and leasing solutions, Fleets will become central players in tomorrow's mobility. Fleets have always valued the right tire choice to ensure safety and to optimize their total cost of ownership but have also considered carefully their fuel spend. Michelin meets both the economic and environmental needs of consumers and Fleets. For consumers and for Fleets, Michelin tyre lines are "made to last" which means they deliver outstanding economic and environmental value to consumers and fleets as they last long and maintain a high level of performance until the end of their life while also delivering fuel savings and reduced CO2 emissions. In 2019, EU institutions have recognized this approach by adding the principle of worn tire testing to the EU regulations in a move endorsed by Michelin. Early replacement of tires leads to the consumption of up to 128 million extra tires in Europe every year, which represents 6.6 million tons of additional CO2 emissions per year and a useless spending of 6.9 billions euros for consumers (Source: EY study, May 2017). In addition, climate change may stimulate consumer demand for tires whose durability, longevity and all-season performance will be highly valued. Michelin is ready to respond to changing customer demand for tire performance capable of responding to changing and new weather conditions. The Michelin's CrossClimate tire line capabilities prevent the need to switch from summer to winter tires and its performances that are "made to last" enables consumers and fleets to enjoy complete safety until the end of the life of the tire, reducing their environmental footprint.

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)

1000000000

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\$ 167 billion in 2019, with light-vehicle tires accounting for 60% for a total market segment worth US\$100 billion. Michelin's market share was 15% in 2019 ; an increase in market share of just 1% could represent an increase in earnings of US\$ 1 billion. This is without considering increased demand for tires. Over the medium term, it is estimated that demand for tires by volume will grow by 0% to 2% per year in mature markets and by 2% to 4% in emerging markets (Source: Michelin estimates). Note: these financial estimates have been officially published in US\$ in the 2020 annual report. Converting them here to euros would not provide a meaningful value given the exchange rate fluctuations.

Cost to realize opportunity

682000000

Strategy to realize opportunity and explanation of cost calculation

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 the marketing teams specialized by business lines; 2/marketing teams in regions to adapt products or service to customers' needs, while meeting the highest quality. CASE STUDY: Michelin launched 4 new products over the last 5 years: 1/the all-season Premier A/S tire for the North American market; 2/CrossClimate tire, the first summer tire in the world with a winter certification. A CrossClimate+ with longer lasting performances. 3/CrossClimate SUV and 4/Agilis CrossClimate for Vans. All these products are designed to perform in extreme temperatures from -30°C to +35°C and rely on Michelin EverGrip technologies, a combination of innovations in material and sculpture. In 2021 Michelin launched MICHELIN CrossClimate2. The all-season range has seen strong growth since Michelin introduced the first summer tire certified for winter use in 2015. It is expected to continue to deliver double-digit gains in Europe, particularly in France where winter tires have become mandatory in 48 departments. Michelin has taken a leader role in this segment and will continue in the future, for instance by aiming at homologating with European OEMs this all-season range. In 2021, Michelin had launched two eco-designed tire lines: The MICHELIN e.Primacy and the Michelin Pilot Sport EV which have been developed with a complete product LCA to make the best balance of performance for both consumers and the planet. Michelin published an Environmental Product Declaration (EPD), as proof of the transparency of its design choices and their environmental impact. MICHELIN e.Primacy is the tyre delivering the lowest fuel consumption (-0.2l/100 kms) and the lowest CO2 emissions of its category (-174kg end of life). It also allows the highest battery range for EVs (+7%). Both products were launched on a CO2 neutral basis at the time of purchase as Michelin will invest in Livelihood funds to offset CO2 emitted in material extraction, tire production and logistics prior to purchase. This opportunity has been confirmed by the market response and an industry award. The cost to realize it is included in the 2021 R&D expenses that stood at €682 million.

Comment**Identifier**

Opp5

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

In a climate scenario, where global warming is limited to 1.5 degrees, it is expected that there will be a significant shift away from high carbon vehicles and toward green technology such as electric cars and hydrogen-powered cars. Hydrogen is key to achieving Paris Agreement objectives. It's appropriate for all uses and eliminates CO2 emissions, improves air quality and furthers the energy transition. Michelin has been working on this technology for more than 15 years. Michelin Hydrogen strategy currently relies on 3 pillars: • Becoming a global leader in hydrogen fuel cell systems with SYMBIO: In collaboration with Faurecia, SYMBIO is a Faurecia-Michelin Hydrogen Company designed to develop, produce and market hydrogen fuel cell systems for cars, utility vehicles, trucks and other electromobility applications. Created in 2010, SYMBIO aims to become a leader in hydrogen mobility in 2030, selling 200,000 fuel cells stacks per year. • Developing hydrogen mobility on the regional level by simultaneously developing vehicles and infrastructure: Michelin has been actively involved in developing the initiative called Zero Emissions Valley, a public-private partnership between Region Auvergne-Rhone Alpes in France, Michelin and key partners like Engie and financial institutions. • Accelerating the deployment of hydrogen mobility through motorsports which Michelin has always considered as a laboratory for innovation and a showcase for technologies. In June 2020, the Group and Symbio became major partners of MissionH24, a project that is looking to integrate hydrogen-powered technology into endurance race vehicles competing in the 24 Hours of Le Mans.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1500000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Electric mobility demand is expected to increase significantly between now and 2030, with hydrogen powered vehicles accounting for 2 million vehicles of which 350,000 trucks. As the only zero emission solution that complements battery-powered electric cars, hydrogen technology is essential in accelerating the deployment of electromobility and addressing its three major challenges: improving air quality, reducing CO2 emissions and the energy transition. Mass production is expected in Europe, China, and the United States. SYMBIO, A FAURECIA MICHELIN HYDROGEN COMPANY aims to capture 25% market share and achieve a turnover of around €1.5 billion by 2030.

Cost to realize opportunity

140000000

Strategy to realize opportunity and explanation of cost calculation

To realize this opportunity, SYMBIO targets vehicle segments where hydrogen creates the most value, such as trucks, buses, and light commercial vehicles. CASE STUDY: The roadmap is on track with the deal announced in 2021 by Symbio and Safran to build as many as 1,500 buses to be fitted with an optimized hydrogen system or the Stellantis, Faurecia, and SYMBIO partnership to develop hydrogen fuel cell light commercial vehicles. In 2021, it will be the laying of the foundation stone of one of the largest fuel cell factories in Europe, stating its production in 2023. The objective: Divide the fuel cell cost by a factor of 10. To develop hydrogen mobility, it is necessary to develop both hydrogen vehicles and hydrogen refueling infrastructure. Michelin is participating in the development of hydrogen mobility at a regional level, by deploying refueling stations in association with other stakeholders, so as to make this mobility more accessible and usable by many modes of transportation. The "Zero Emission Valley" (ZEV) project clearly illustrates Michelin's deep commitment to the hydrogen sector. Set up by the Auvergne-Rhône-Alpes regional authority in France, and the Engie group, ZEV is a clean mobility solution deployed on a regional scale to make the area the first European hydrogen-powered mobility zone. This will involve installing 20 stations powered by green hydrogen and deploying 1,200 hydrogen-powered vehicles for businesses to use. The cost to realize this opportunity is €140 million. It corresponds to the initial investment from Michelin and Faurecia in the venture to speed up the development of next-generation fuel cells, start-up mass production and grow the business in Europe, China and the United States.

Comment**Identifier**

Opp7

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Other, please specify (Shift in fleets preferences)

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

With growing urbanization, limited access to cities and the development of vehicle sharing and leasing solutions, Fleets will become central players in tomorrow's mobility. Driven by the pandemic, services like online shopping, last mile delivery and pay-per-use, on-demand vehicles are encouraging the development of specialized fleets (vans, e-hailed vehicles, cars, shuttles, scooters, bicycles) fitted with robust, reliable and connected tires. Fleets have always valued the right tire choice to ensure safety and to optimize their total cost of ownership but have also considered carefully their fuel spend. Michelin meets both the economic and environmental needs of Fleets. Michelin tyrelines for fleets are "made to last" while also delivering fuel savings and reduced CO2 emissions. With Masternaut in Europe, NexTraq in North America and Sascar in Latin America, MICHELIN Connected Fleet already serves 70,000 customers in 48 countries. The onboard telematics systems installed in their 600,000 managed trucks, trailers and other vehicles collect real-time data from 300 million trips a year. In-depth analysis of these data enables Michelin Connected Fleet experts to offer effective, custom-tailored action plans to fleet managers looking to optimize asset use, reduce costs, improve operating safety and reduce their environmental impact. In particular, it allows to control fuel consumption and provide options for reduction, hence reduction of CO2 emissions.

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)

700000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Michelin ambition on services and solutions is to reach €0,7bn revenue in 2023 including €0,4bn in Tire as a service (tire activity), and €0,3bn on new growth avenues (non tire activities).

Cost to realize opportunity

682000000

Strategy to realize opportunity and explanation of cost calculation

As the market leader in connected tires and a major partner in digital fleet management, the Michelin Group offers its corporate customers services and solutions that improve their performance, simplify their maintenance, increase asset uptime, enhance their safety performance, reduce their costs and attenuate their environmental impact. CASE STUDY: By analyzing real-world mobility data from vehicles in service, MoveElectric, proposed by Masternaut, enables corporate fleet managers to accurately assess the benefits of moving to EVs, including greater efficiency, lower carbon emissions and higher margins. They can also identify which vehicles to replace first and optimize the roadmap to meet regulatory deadlines on the way to full fleet electrification by 2030. In Europe, urban-based light truck users will soon have to shift to full electrification in compliance with new regulations. In response, Watèa was set up to make this transition as simple and easy as possible, by offering a customized, all-in-one monthly subscription. The solution includes a fleet of EVs suited to the company's needs, the installation of on-site recharging stations and access to a public grid, an application enabling drivers to monitor their remaining range, personalized services to optimize vehicle use and improve productivity, and long-term support. In all, a better way forward to electric mobility. With 1.1 million vehicles currently under Michelin Group contract, this number is expected to grow about +15% CAGR by 2030. More than 5 millions transactions are expected per year, with more than 10 000 services providers. 50 connected offers are planned to be launched per year.

Comment**C3. Business Strategy****C3.1****(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?****Row 1****Transition plan**

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a transition plan within two years

Publicly available transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

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

<Not Applicable>

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

Michelin already has a transition plan which is being developed iteratively. It consists of 1) a decarbonization plan covering Scopes 1, 2 and 3 emissions, and 2) a business strategy transition. We also already have a feedback mechanism in place: oversight by the Supervisory Board's CSR Committee, as detailed in C1.1a. The decarbonization plan is currently aligned to well-below 2°C for Scope 1 and 2 emissions and to 2°C for Scope 3 emissions. Michelin committed in 2021 to net-zero emissions in 2050 via the "Race to Zero" initiative. We will submit reduction targets in 2022 to SBTi for validation consistent with the criteria under "Business Ambition for 1.5° C", Option 2. We continue to work on identifying levers for reducing GHG emissions in operations towards aligning Scopes 1 and 2 with 1.5°C and Scope 3 with well-below 2°C. The decarbonization plan includes the management of market and regulatory transition risks, as detailed in C2.3a, that could impact the decarbonization roadmap. The business strategy transition consists of a/ specific climate-related opportunities as detailed in C2.3a, b/ an increasing portfolio of low carbon products and services, c/ maintaining profit centers in a net-zero carbon economy. We plan to develop time-bound metrics and milestones for external stakeholders to judge the robustness of the Group's business strategy transition. No substantive risks have been identified to date regarding Michelin's offer of products and services. The Michelin Transition Plan is set out in chapter 4 of the 2021 Universal Registration Document published at <https://www.michelin.com/en/michelin-group/>. Physical risks related to climate change, per TCFD recommendations, are not included in Michelin's Transition Plan but rather in its Adaptation Plan.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

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

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

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 2.6	Company-wide	<Not Applicable>	How the scenario was identified, inputs, assumptions, and analytical methods: To accelerate the Scope 1 & 2 CO2 reduction roadmap, Michelin chose the IPCC AR5 RCP 2.6 climate scenario's middle range pathway which corresponds to a goal of net zero emissions by 2050. The modelling under this scenario is both linear and non-linear, the former allowing implementation of known technologies to be planned over time, and the latter for anticipating technological/market/socio-economic conditions, particularly in the area of renewable energy availability. The actionable levers for decarbonization are a/ improving energy efficiency (11 distinct energy efficiency initiatives covering insulation, electrification, closed loops, leak prevention, metering, and process efficiency), b/ reducing the CO2 emission factor (renewable energy, both purchased and on-/off-site projects, coal phase-out at 5 plants), c/ scoping out CCS opportunities. Time horizon: 2021-2030 covering next two 5-year strategic planning cycles Areas of the organization considered in the scenario analyses: Worldwide manufacturing base (95.5% of all Scope 1&2 GHG emissions) Results of the scenario analysis: A new target of 27.5% absolute emissions reduction from 2019 to 2030 (2.5% reduction per year on average over the period), was developed with a detailed technical and cost roadmap of levers to implement, with a priority on optimizing energy efficiency, and complemented by gradual ramping up of renewable energies. It was submitted in July 2022 to SBTi for validation. How the scenario analysis results informed business objectives and strategy: The new near-term target was approved by the Environment Governance (EG) and publicly announced in the 2020 annual report. The EG also approved the emission reduction levers and the capex and opex forecast to 2030, which together constitute the Target Roadmap, the basis for the corporate manufacturing division to set its 5-year strategic plan. Case study of how the scenario analysis results directly influenced business objectives and strategy: On-site renewable power is one of the reduction levers. Based on worldwide market studies by the corporate Energy and CO2 Mitigation Expert Team, opportunities were developed: from 2020-2021, solar power units were commissioned at 4 manufacturing plants: 2 in Thailand (generating 2,600 MWh/yr), 1 in India (5,500 MWh or 10% of the facility's needs) and 1 in China (full-year capacity of 7,000 MWh).
Transition scenarios Customized publicly available transition scenario	Company-wide	1.6°C – 2°C	"How the scenario was identified: 2020 TCFD guidance on "disorderly transition scenario", aligned to 1.7°C. Developed in-house using state-of-the-art information (e.g., 2019 critical review of public scenarios published by The Shift Project, input from experts at CDP, The Shift Project, other international companies). 2021: basis for qualitative analysis of Michelin's strategic plan. Models used: The IEA SDS and to a lesser degree IEA NZE 2050 were used for deployment of green technologies. The hypothesis regarding societal practices (travel/mobility & food consumption) correspond to the public scenario ADEME S1 "Frugal generation". Time horizons: 2035: description & quantitative indicators, worldwide map of countries where the scenario is predominant 2050: detailed narrative of everyday life Drivers: Informed by the STEEP method (Social, Technology, Economic, Environmental and Policy): 1/ landscape of environmental crises and shocks having an impact on society (climate change, plus resource depletion, biodiversity collapse, pollution); 2/ economic system and economic growth; 3/ pace of energy decarbonization; 4/ development of technological inventions and strategies; 5/ predominant lifestyles and consumer spending patterns; 5/ political regime and its priorities. The drivers are characterized qualitatively and quantitatively to describe a world in which the equivalent of a "war effort" is made to reduce GHG emissions and limit resource consumption, with frugality being the mandated standard for all. Quantitative parameters: GDP & population growth, energy consumption (TWh), carbon intensity of energy (kg CO2/kWh), people & goods mobility (billions of km-p) Assumptions (constants): Population forecasts; self-interest as the predominant behavior; political & socio-economic fragmentation; irreversibly digitalized world; coexistence with 3 other scenarios Main data sources: Decarbonization (GHG emissions, energy factors & use, economic output and demography), societal (consumption/production, ecological footprint, development/well-being indices, migration, political regimes/interventionism, technology, food & agriculture, mobility): The World Bank Open Data and Carbon Pricing Dashboard, The Oxford Martin School/Oxford University Global Change Data Lab, Climate Watch data, Global Footprint Network, Yale University/Columbia University Environmental Performance Index, International Organization for Migration Data Portal, The Economist Intelligence Unit
Transition scenarios Customized publicly available transition scenario	Company-wide	2.1°C - 3°C	How the scenario was identified: 2020 TCFD guidance on "disorderly transition scenario", aligned to 2.5°C. Developed in-house using state-of-the-art information (e.g., 2019 critical review of public scenarios published by The Shift Project, input from experts at CDP, The Shift Project, other international companies). 2021: basis for qualitative analysis of Michelin's strategic plan. Models used: Similar to the public scenario ADEME S3 "Green Technologies" (https://www.ademe.fr/en/futures-in-transition/scenarios) and constructed to contrast to the 3 other in-house models described herein. Time horizons: 2035: description & quantitative indicators, worldwide map of countries where the scenario is predominant 2050: detailed narrative of everyday life Drivers: Informed by the STEEP method (Social, Technology, Economic, Environmental and Policy): 1/ landscape of environmental crises and shocks having an impact on society (climate change, plus resource depletion, biodiversity collapse, pollution); 2/ economic system and economic growth; 3/ pace of energy decarbonization; 4/ development of technological inventions and strategies; 5/ predominant lifestyles and consumer spending patterns; 5/ political regime and its priorities. The drivers are characterized qualitatively and quantitatively to describe a world in which technological solutions pervade all levels of society to reduce GHG emissions and resource consumption, maintaining similar lifestyles as today. Quantitative parameters: GDP & population growth, energy consumption (TWh), carbon intensity of energy (kg CO2/kWh), people & goods mobility (billions of km-p) Assumptions (constants): Population forecasts; self-interest as the predominant behavior; political & socio-economic fragmentation; irreversibly digitalized world; coexistence with 3 other scenarios Main data sources: Decarbonization factors (GHG emissions, energy factors, energy use, economic output and demography), societal factors (consumption/production, ecological footprint, development/well-being indices, migration, political regimes/interventionism, technology, food & agriculture, mobility): The World Bank Open Data and Carbon Pricing Dashboard, The Oxford Martin School/Oxford University Global Change Data Lab, Climate Watch data, Global Footprint Network, Yale University/Columbia University Environmental Performance Index, International Organization for Migration Data Portal, The Economist Intelligence Unit.
Transition scenarios Customized publicly available transition scenario	Company-wide	3.1°C - 4°C	How the scenario was identified: 2020 TCFD guidance on "disorderly transition scenario", aligned to 3.2°C and 3.7°C, respectively. Developed in-house using state-of-the-art information (e.g., 2019 critical review of public scenarios published by The Shift Project, input from experts at CDP, The Shift Project, other international companies). 2021: basis for qualitative analysis of Michelin's strategic plan. Models used: IEA STEPS and IEA 4DS Time horizons: 2035: description & quantitative indicators, worldwide map of countries where the scenario is predominant 2050: detailed narrative of everyday life Drivers: Informed by the STEEP method (Social, Technology, Economic, Environmental and Policy): 1/ the landscape of environmental crises and shocks having an impact on society, including resource depletion, collapse of biodiversity and various forms of pollution in addition to climate change; 2/ the economic system and economic growth; 3/ the pace of energy decarbonization; 4/ the development of technological inventions and strategies; 5/ predominant lifestyles and consumer spending patterns; 5/ the political regime and its priorities. The drivers are characterized qualitatively and quantitatively to describe 2 different worlds: one in which major legislated policies are made throughout the world to reduce GHG emissions and resource consumption, while private individuals and companies change their respective behaviors marginally; the other in which "business as usual" reigns in public and private spheres and consumer behaviors continue on their current trends, triggering environmental and social chaos. Quantitative parameters: GDP & population growth, energy consumption (TWh), carbon intensity of energy (kg CO2/kWh), people & goods mobility (billions of km-p) Assumptions (constants): Population forecasts; self-interest as the predominant behavior; political & socio-economic fragmentation; irreversibly digitalized world; coexistence with 2 other scenarios Main data sources: Same as the 2 scenarios described above.

Climate-related scenario		Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios	RCP 3.4	Company-wide	<Not Applicable>	How the scenario was identified, inputs, assumptions, and analytical methods: To set an initial target for reducing Scope 1&2 emissions, in 2018 Michelin chose the IPCC AR5 RCP4.3 climate scenario's lowest-range pathway that limits global warming to ~2°C. The modelling under this scenario was both linear and non-linear, the former allowing implementation of known technologies to be planned over time, and the latter for anticipating technological/market/socio-economic conditions, particularly in the area of renewable energy availability. The actionable levers for decarbonization are a/ improving energy efficiency (identified energy efficiency initiatives covering insulation, electrification, closed loops, leak prevention, metering, and process efficiency), and b/reducing the CO2 emission factor (renewable energy, both purchased and on-/off-site projects, coal phase-out at 5 plants). Time horizon: 2010-2030 covering two 5-year strategic planning cycles (2019 to 2029) Areas of the organization considered in the scenario analyses: Worldwide manufacturing base (95% of all Scope 1&2 GHG emissions) Results of the scenario analysis: A target was developed to reduce absolute emissions by 38% from 2010 to 2030, equivalent to a linear 1.9% reduction per year on average, with a detailed technical and cost roadmap of levers to implement, with a priority on optimizing energy efficiency, and complemented by gradual ramping up of renewable energies. It was formally approved by SBTi in April 2020. How the scenario analysis results informed business objectives and strategy: This target was approved by the Environment Governance (EG) in 2018. The EG also approved the emission reduction levers and initial capex and opex forecasts for the following 5-year business strategy cycle. Case study of how the scenario analysis results directly influenced business objectives and strategy: Ending use of coal for thermal energy is one of the primary CO2 reduction levers. For this reason, in 2018 the EG approved eliminating all direct and indirect coal use by 2030. The corporate Energy and CO2 Mitigation Expert Team began opportunity and feasibility studies on 4 of the 5 manufacturing plants that use coal. Under Michelin policy, the coal replacement options must include at least one renewable energy option, if available, in addition to natural gas. In 2019, the Olsztyn, Poland plant took the first step towards phasing out coal by installing a gas boiler supplying 20% of its heating needs.

C3.2b

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

Row 1

Focal questions

Rationale for selecting the scenarios disclosed in C3.2a: The 4 scenarios selected for analysis are fully in line with the principles set out in TCFD "Guidance on Scenario Analysis for Non-Financial Companies", October 2020, and state-of-the art practices. Rather than looking at each scenario individually on a worldwide basis, the 4 scenarios were analyzed together based on a worldwide map displaying the scenario or blend of scenarios considered most likely for each country. The rationale for this approach is grounded in the fundamental assumption that the 4 scenarios will coexist over the coming decades in the different countries of the world. In 2021 the set of 4 climate scenarios was analyzed at two levels of the company: 1/ by the Group Executive Committee, to compare them to the Group's strategic plan and to analyze its resilience with regard to future climate change and associated environmental, economic and socio-political transitions. 2/ by the major business lines, regional organizations, operating division, corporate departments and other units as part of strategic thinking and ideation exercises to spur innovation. List of focal questions: The focal questions for the Group Executive Committee were: a/ Do the 4 scenarios challenge our strategic choices? b/ If so, what are main strengths & weaknesses of the current strategy regarding each scenario? The focal question for the business lines, regional organizations, operating division, corporate departments was also about the main strengths & weaknesses of the current strategy under each scenario? This focal question is asked for each major component of the business/tactical plan: innovation program, commercial offer, skills and competencies level, supply chain processes, risk management process, etc. It aims to produce a detailed analysis of the "strategic fit" of the organization under each of the 4 scenarios.

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

Results of the company-wide scenario analysis: 1/ Concluding observations -Validation by the Group Executive Committee of the 4 scenarios as plausible trajectories, to different degrees depending on the geography/region, each complex and paradoxical, as are the choices to be confronted. -Agreement by the Group Executive Committee members on the relevance of the assumption of co-existing scenarios or blend of scenarios playing out over time on a country-by-country basis, driven by governmental decisions. 2/ Decisions regarding the strategic plan: -Retention of business strategy fundamentals: ever-increasing connectivity, the necessity of key external partnerships, and a set of trends that are favorable as concerns vehicle fleets, urban mobility, micromobility and intermodality and unfavorable as concerns environmental degradation. - Climate-related questions are to be addressed systematically in the annual strategic planning process. Scenario analysis for focus areas is to be done on an ad hoc basis as needed, while scenario analysis at the company-wide level is to be done at a regular interval set by the Group Executive Committee. 3/ Actions taken following the analysis -Several innovation priorities were identified, including developing offers for managing end-of-life tires and means to adapt tire products and operations to higher temperatures. Results of the scenario analysis by business lines, regional organizations, operating division, corporate departments: 1/ Concluding observations: Integrating dynamic trends related to climate change and complexities of reaching planetary limits is a crucial underpinning of business strategy and tactical plan development. 2/ Decisions regarding strategic planning: integrate the inflections from the "strategic fit" scenario analysis into 5-year business & operational strategies. 3/ Actions taken following the analysis: varying depending on the mission of the organization, but center on bringing CO2 mitigation solutions to customers and adapting supply chain operations to reduce/better manage physical and transition risks, direct and indirect.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Rationale: Michelin's predominant products in terms of sales revenues are tires for a multitude of uses (passenger car, truck & bus, two-wheel, off-road). Regardless of type, the use phase represents between 70 and 97% of the life cycle CO2 emissions of tires. The same is true for the use phase of vehicles. As downstream mobility users seek opportunities to reduce their CO2 footprint, Michelin has opportunities to develop product and service offers that deliver CO2 reductions to its customers. Beyond tires, opportunities for low-carbon mobility have given momentum to developing new products and services. How strategy has been influenced: Climate change opportunities stemming from regulation and extreme weather have reinforced historic activities: a/ continued development of long-lasting, energy-efficient tires to benefit from thresholds and grading for tire energy efficiency and vehicle emission standards, mainly in Europe and Japan (mitigation-related activity); b/ innovative offers for fleets to improve fuel efficiency (mitigation-related); and c/ all-weather tires (adaptation-related). The historic activity strategy is articulated over the medium-term time horizon. Opportunities for low-carbon mobility, mainly from regulation and changing market expectations (investors, customers) coupled with risks from limited resources have influenced strategy: new business ventures have been launched around hydrogen-powered mobility, transport-as-a-service, and advanced materials built on closed- and open-loop models for using end-of-life tires and diverse plastic wastes as feedstock. Case study of a substantial strategic decision: Opportunities for new low-carbon mobility (mitigation-related) have confirmed a long-term strategy: In 2019, following 15 years of R&D in hydrogen fuel cells and building public & private partnerships, Michelin made a strategic decision to enter this emerging market by acquiring Symbio and joining with Faurecia to create a joint venture with an initial investment of €140 million. Known as Symbio, A Faurecia Michelin Hydrogen Company, the JV will develop, produce and market hydrogen fuel cell systems for cars, utility vehicles, trucks and other electromobility applications. 2030 objective: produce 200,000 hydrogen systems a year. In 2021, construction of a fuel cell plant in France was launched.
Supply chain and/or value chain	Yes	Rationale: The CO2 footprint from raw materials, transportation & distribution, and end-of-life treatment is significant, account for virtually all of Scope 3 emissions, excluding the use phase of products and services. Reducing emissions in these areas represents an opportunity to generate new efficiencies as well as revenue streams and meet external stakeholder expectations. At the same time, acute physical impacts from extreme weather events present an increasing risk to supply chain operations. How strategy has been influenced: 1/ Michelin has aligned its Scope 3 CO2 reduction targets with the Paris Agreement. Two targets have been set and approved by SBTi, one for suppliers of raw materials and the other for transport and end-of-life treatment. The time horizon for the raw material suppliers target is short-term (2024) and for the other targets medium-term (2030). 2/ Climate-related risks were fully integrated into the Group risk map in 2020, aligned with TCFD risk types. Potential for impact in the supply chain from extreme weather events is identified as one of the main risk factors. Case studies of substantial strategic decisions: 1/ To deliver CO2 reductions in the upstream value chains, Michelin coordinated the launch of a major European project: BlackCycle. The 13-member public-private consortium aims to create a closed loop for producing tires: collection of end-of-life tires and selection of feedstock, optimization of pyrolysis, refining and recovery of the oil, optimization of the kiln processes and performance evaluation of the sustainable tires produced with the recovered materials. The project's goal is to reduce the CO2 emission factor of key raw materials by 30%. 2/ Following a corporate-wide audit of acute and chronic physical risks related to climate change covering all operations, direct and indirect with value chain partners, to determine maximum possible impact, current risk management practices and residual risk, proof-of-concept risk evaluation tools for key raw materials were developed in 2021.
Investment in R&D	Yes	Rationale: The CO2 footprint of tires and different forms of mobility is predominantly in the use phase, along with significant emissions to produce raw materials. To develop product and service offers that deliver CO2 reductions, investment in R&D is essential. How strategy has been influenced: 1/ Existing opportunities have been maintained and expanded in 3 strategic growth pillars encompassing: a/ continual improvement of tire energy efficiency, b/ resource-saving, low-carbon services and solutions for fleets, and c/ innovations in new power trains (e.g., hydrogen fuel cell). This strategy will continue over the medium time horizon. In 2020, around 18% of the total R&D budget was allocated to continuously improving tire energy efficiency and developing hydrogen mobility technologies. 2/ New opportunities: The challenges of reducing the use of fossil fuels and materials derived from them has highlighted opportunities to develop high-performance materials from renewable or recycled feedstock. Investor and customer expectations have also driven changes at the strategic level. This context led Michelin in 2016 to establish the area of advanced materials as a strategic growth driver over the medium time horizon. To underpin the strategy, the Group set a long-term objective of using 100% sustainable materials in 2050 and a medium-term target of 40% in 2030. Case study of a substantial strategic decision: In 2020 Michelin launched a 5-year R&D project called "EMPREINTE" ("Footprint") with a budget of €74.6M, including €13.4M of French government aid and 4 objectives: a/ develop new materials derived from waste recovery and develop new processes to obtain them, focusing on polymers, fillers, chemicals and metal reinforcements; b/ design and develop sustainable tires that integrate these new materials, while guaranteeing performance suitable for tomorrow's vehicles and new mobility uses; c/ optimize the impact of tire use through connectivity and predictive maintenance and develop new mobility services; d/ optimize tire assembly processes to adapt to these new products through a flexible, efficient and economically viable manufacturing process.
Operations	Yes	Rationale: Climate change risk and opportunities, particularly around regulatory changes, rising energy costs, increased availability of renewables and increasing societal expectations for corporate stewardship, have changed how Michelin sources and uses energy in its manufacturing and logistics operations. How strategy has been influenced: 1) Michelin has aligned its Scope 1, 2 & 3 CO2 reduction targets with the Paris Agreement, and they have approved by SBTi. The time horizon for the Scopes 1&2 target is medium-term (2030) and for the 2 Scope 3 targets short-term (2024) and medium-term (2030), respectively. These targets are the foundation of emission reduction roadmaps that identify actionable levers, costs and implementation timeframe. The roadmaps are validated by the Environment Governance body. They serve as key inputs to the 5-year strategic planning process for the manufacturing and supply chain operations corporate divisions. 2) Climate-related risks were fully integrated into the Group risk map in 2020, aligned with TCFD risk types. Potential for impact in on operations (manufacturing plants, logistics warehouses, and transportation routes) from extreme weather events is identified as one of the main risk factors. Case studies of substantial strategic decisions: a/ To reduce CO2 reductions in logistics operations, Michelin signed a letter of commitment in 2021 for maritime transport with NEOLINE, a French shipowner relying on main propulsion by wind energy for its 136m-long cargo ships equipped with 4200 m2 of sails. The commitment encompasses the transport of Michelin-produced tires loaded in containers from Halifax (Canada) to Saint-Nazaire - Montoir de Bretagne (France) on the first transatlantic line to be opened by NEOLINE in 2023. With the arrival of a second vessel, scheduled a year later, the Michelin will gradually entrust NEOLINE with at least 50% of the group's containers transported on this line. 2/ Following a corporate-wide audit of acute and chronic physical risks related to climate change covering all operations, direct and indirect with value chain partners, to determine maximum possible impact, current risk management practices and residual risk, a proof-of-concept risk evaluation tool was developed in 2021.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets	<p>Revenues: Risks and opportunities are inherent in rapidly evolving mobility markets in which B2B and B2C preferences and behavior can drive the willingness to pay for low carbon products and services upwards or downwards thereby influencing revenues. Case study: Opportunities for low carbon products and services have influenced revenues in a positive direction. As a market leader in connected tires and digital fleet management, Michelin offers its corporate customers services and solutions to reduce their carbon footprints, in addition to other key benefits (e.g., enhancing safety performance, simplifying maintenance). The goal for the services and solutions business unit is to double revenue over 5 years, by new and expanded fleet management solutions. Pressure to decarbonize will lead to increasing needs from fleets for such service, thus increasing Michelin future revenues. Sales of tire-related services and solutions totaled €178 M in 2021. With 1.1 million vehicles currently under Michelin Group contract, this number is expected to grow about +15% CAGR by 2030. More than 5M transactions are expected per year, with more than 10 000 services providers. 50 connected offers/yr are planned to be launched. Time horizon: short-term. Direct & indirect costs: Influenced by the CO2 reduction roadmap approved by the Environment Governance (EG) and the risk of not meeting external stakeholder expectations for net zero emissions. Direct costs come from projects to reduce energy consumption and procurement of renewable energy, and indirect costs from CO2 allowances and carbon taxes. Case study: Future purchase of CO2 allowances under the EU ETS (€9.3M in 2021 and estimated €18M in 2025) for 15 sites and additional costs expected in the medium-term under the China ETS system. Forecasted increases in CO2 allowances are determined by the CO2 Allowances Management Committee, a cross-functional team tasked with optimizing compliance costs. Its findings are communicated to the impacted manufacturing sites so that the forecasts can be balanced with capex and opex for projects to reduce energy consumption and CO2 emissions. The optimal strategy from a financial and CO2 reduction perspective can be integrated into the sites' 5-year strategic plan. Time horizon: short-term. Capital expenditures: Capex planning is influenced by the CO2 reduction roadmap approved by the EG and the risk of not meeting external stakeholder expectations for net zero emissions. Case study: To guarantee annual progress against CO2 reduction targets and anticipate regulatory costs of CO2 emissions, Michelin raised the internal carbon price from 50 to 100 €/metric ton CO2, approved by the EG in 2021. Project leaders must submit 2 scenarios, with and without the internal carbon price. Project sponsors 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. The internal price is regularly reviewed based on analysis of external carbon pricing trends. Time horizon: short-term. Capital allocation: This element is influenced by the CO2 reduction roadmap approved by the EG and the risk of not meeting external stakeholder expectations for net zero emissions. Managing this risk thus involves allocating capital at the corporate level for manufacturing operations and logistics operations. Case study: An annual target is set for investments in manufacturing energy efficiency projects, an average of € 54M per year from 2022 to 2030. Each year the 5-year strategic plan at regional manufacturing level is reviewed and readjusted to include an investment budget corresponding to the energy efficiency projects that have been prioritized according to three criteria: 1) technical feasibility, 2) cost and return on investment, and 3) contribution to meeting Michelin's 2030 CO2 reduction target for Scopes 1 & 2 of -50% in absolute value (2010 baseline). Time horizon: medium-term. Acquisitions and divestments: Financial planning is influenced by the strategic plan "Michelin in Motion" to grow "Around Tires" and "Beyond Tires" which takes into consideration risks and opportunities driven by evolving market needs to reduce materials extraction - and the associated carbon footprint - and the carbon footprint of products and services particularly in the use phase. Case study: Acquisitions to generate growth "Around Tires" focus on digital technologies/services to supporting zero-emission fleets by optimizing operations and easing the transition to electrification with data analytics. Main acquisitions in recent years include Sascar, NexTraq, Masternaut, Maestro Marketplace. These companies serve 70,000 customers in 48 countries covering 300 million trips a year, with continued acquisitions planned in a global fleet management market projected to grow 15% a year through 2030. Acquisitions to generate growth "Beyond Tires" focus on advanced materials, including bio-based and recycled feedstocks, and hydrogen-powered mobility. Main acquisitions include Lehigh Technologies, specializing in micronized rubber powders derived from recycled end-of-life tires and other rubber-based industrial products; strategic partnerships with Enviro, Carbios and Pyrowave to develop innovation recycling technologies around waste plastics and end-of-life tires; and a joint venture with Faurecia to create Symbio, a leader in hydrogen-powered mobility. Time horizon: short-term. Access to capital: This element is influenced by the risk of negative shareholder feedback regarding corporate climate change strategy. Michelin regularly discusses the sustainability strategy with shareholders and potential investors. Given Michelin's strong ESG performance as evaluated by extra-financial rating organizations, several of which use information reported to the CDP, access to financial capital remains open, if not more accessible. Case study: Michelin uses its ESG status as an opportunity. In 2020, the Group signed a EUR 2.5bn Multicurrency Revolving Credit Facility with a group of 19 banks, linking its pricing to a set of 3 "Sustainability Performance Targets" among which the reduction of Scope 1&2 emissions. Time horizon: short-term. Assets: influenced by the CO2 reduction roadmap approved by the EG and the risk of not meeting external stakeholder expectations for net zero emissions. Case study: Michelin has 4 production sites that use steam produced from coal-fired boilers, 3 in Europe, 1 in North America. The boilers are potentially stranded assets under climate change scenarios compatible with the Paris Agreement. Michelin is pursuing its coal exit strategy for manufacturing to achieve a 50% reduction of CO2 emissions from 2010-2030. Annual capital investment required ranges from €12 M to €30 M per year, depending on the coal replacement choices made at each location. Time horizon: medium-term</p>

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

Target reference number

Abs 1

Year target was set

2018

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2010

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

1854670

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

2022603

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

<Not Applicable>

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

3877273

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

100

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

100

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

<Not Applicable>

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

96

Target year

2021

Targeted reduction from base year (%)

28.7

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

2764495.649

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

1346122.73

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

1417620.72

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

<Not Applicable>

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

2462704

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

127.120577960074

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

2°C aligned

Please explain target coverage and identify any exclusions

Note: Michelin has prepared science-based targets on scopes 1, 2 and 3 and submitted them to SBTi in October 2019. The targets were validated in May 2020 (Michelin submitted for all 3 scopes since scope 3 emissions are greater than 40% of the total). On scopes 1 and 2, Michelin committed to reduce absolute scope 1 and 2 GHG emissions by 38% by 2030 from a 2010 base year (abs1). To date Michelin is on track to meet this scope 1 and 2 ambition by 2030. Beyond this, Michelin has set a new long-term ambition to reach Zero Net Emissions on scopes 1 and 2 by 2050 (Abs2). A new intermediary target, in line with the new 2050 target, was set in the second half of 2020 to guide this process, based on a linear reduction pathway (Abs3). Alignment with 2DS : This target is aligned with SBTi 2DS because it commits the Group to reach net zero no later than 2050 and comes with a mid term (2030) target involving a pace of progress better than 1.23 percent per year. 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, in the framework of preparing our submission to Science Based Targets Initiative, 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, until the end of 2020, our short term, non-submitted to SBTi 2020 target was based on our historical 2010 emission value (4 067 000 tonnes). However, the recalculated 2010 base-year emissions (3,850,000 tonnes) was the base for our SBTi submission (2030 and 2050 targets). We also incorporated the emissions of two, newly acquired sites.

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

As part of its commitment to achieving net-zero carbon emissions across its entire production base by 2050, the Group has set an intermediate target of reducing its emissions by 50% by 2030 compared to 2010. In addition to improving energy efficiency, the Group is exploring a wide array of sustainable solutions to use renewable sources to generate not only electricity but also heat by burning biomass and biogas as fuel. The latter is a more difficult challenge, as the commercial supply of sustainably produced biogas and biomass is not growing as fast as the supply of electricity from guaranteed renewable sources. For 2030, the Group's objectives are to: ► reduce emissions from Group production facilities by 50% versus 2010 in absolute terms (indicator: tonnes of Scope 1 and 2 CO2 released); ► eliminate the use of coal to generate own or purchased heat (indicator: % of coal in our heat sources); ► improve production plant energy efficiency by 37% versus 2010 (indicator: MWh used per tonne produced). Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%. The ratio of CO2 emissions per tonne of output stood at 0.29, versus 0.32 in 2019.

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

<Not Applicable>

Target reference number

Abs 2

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2010

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

1854670

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

2022603.32

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

<Not Applicable>

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

3877273

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

100

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

100

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

<Not Applicable>

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

96

Target year

2050

Targeted reduction from base year (%)

100

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

0

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

0

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

0

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

<Not Applicable>

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

2462704

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

36.4836058745412

Target status in reporting year

Revised

Is this a science-based target?

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

Target ambition

Other, please specify (Race to Zero - Business Ambition for 1.5°C)

Please explain target coverage and identify any exclusions

Note: Michelin has prepared science-based targets on scopes 1,2 and 3 and submitted them to SBTi in October 2019. The targets were validated in May 2020 (Michelin submitted for all 3 scopes since scope 3 emissions are greater than 40% of the total). On scopes 1 and 2, Michelin committed to reduce absolute scope 1 and 2 GHG emissions by 38% by 2030 from a 2010 base year (abs1). To date Michelin is on track to meet this scope 1 and 2 ambition by 2030. Beyond this, Michelin has set a new long-term ambition to reach Zero Net Emissions on scopes 1 and 2 by 2050 (Abs2). A new intermediary target, in line with the new 2050 target, was set in the second half of 2020 to guide this process, based on a linear reduction pathway (Abs3). Alignment with Race to Zero - Business Ambition for 1.5°C : This target is aligned with Race to Zero - Business Ambition for 1.5°C (option 2) because it commits the Group to reach net zero no later than 2050 and comes with a mid term (2030) SBTi WB2D target involving a pace of progress better than 2.5 percent per year. 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, in the framework of preparing our submission to Science Based Targets Initiative, 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. or simplicity reasons in our internal communication and target setting, until the end of 2020, our short term, non-submitted to SBTi 2020 target was based on our historical 2010 emission value (4 067 000 tonnes). However, the recalculated 2010 base-year emissions (3,850,000 tonnes) was the base for our SBTi submission (2030 and 2050 targets). We also incorporated the emissions of two, newly acquired sites.

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

As part of its commitment to achieving net-zero carbon emissions across its entire production base by 2050, the Group has set an intermediate target of reducing its emissions by 50% by 2030 compared to 2010. In addition to improving energy efficiency, the Group is exploring a wide array of sustainable solutions to use renewable sources to generate not only electricity but also heat by burning biomass and biogas as fuel. The latter is a more difficult challenge, as the commercial supply of sustainably produced biogas and biomass is not growing as fast as the supply of electricity from guaranteed renewable sources. For 2030, the Group's objectives are to: ► reduce emissions from Group production facilities by 50% versus 2010 in absolute terms (indicator: tonnes of Scope 1 and 2 CO2 released); ► eliminate the use of coal to generate own or purchased heat (indicator: % of coal in our heat sources); ► improve production plant energy efficiency by 37% versus 2010 (indicator: MWh used per tonne produced). Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%. The ratio of CO2 emissions per tonne of output stood at 0.29, versus 0.32 in 2019.

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

<Not Applicable>

Target reference number

Abs 3

Year target was set

2020

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2010

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

1854670

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

2022603.32

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

<Not Applicable>

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

3877273

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

100

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

100

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

<Not Applicable>

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

96

Target year

2030

Targeted reduction from base year (%)

50

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

1938636.5

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

100

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

100

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

<Not Applicable>

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

2462704

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

72.9672117490824

Target status in reporting year

New

Is this a science-based target?

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

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

Note: Michelin has prepared science-based targets on scopes 1,2 and 3 and submitted them to SBTi in October 2019. The targets were validated in May 2020 (Michelin submitted for all 3 scopes since scope 3 emissions are greater than 40% of the total). On scopes 1 and 2, Michelin committed to reduce absolute scope 1 and 2 GHG emissions by 38% by 2030 from a 2010 base year (abs1). To date Michelin is on track to meet this scope 1 and 2 ambition by 2030. Beyond this, Michelin has set a new long-term ambition to reach Zero Net Emissions on scopes 1 and 2 by 2050 (Abs2). A new intermediary target, in line with the new 2050 target, was set in the second half of 2020 to guide this process, based on a linear reduction pathway (Abs3). Alignment with WB2D : This target is aligned with SBTi WB2D because it involves a pace of progress better than 2.5 percent per year. Besides, it comes with a net-zero target no later than 2050 (Abs 2) so it is also aligned with Race to Zero - Business Ambition for 1.5°C. 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, in the framework of preparing our submission to Science Based Targets Initiative, 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. or simplicity reasons in our internal communication and target setting, until the end of 2020, our short term, non-submitted to SBTi 2020 target was based on our historical 2010 emission value (4 067 000 tonnes). However, the recalculated 2010 base-year emissions (3,850,000 tonnes) was the base for our SBTi submission (2030 and 2050 targets). We also incorporated the emissions of two, newly acquired sites.

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

As part of its commitment to achieving net-zero carbon emissions across its entire production base by 2050, the Group has set an intermediate target of reducing its emissions by 50% by 2030 compared to 2010. In addition to improving energy efficiency, the Group is exploring a wide array of sustainable solutions to use renewable sources to generate not only electricity but also heat by burning biomass and biogas as fuel. The latter is a more difficult challenge, as the commercial supply of sustainably produced biogas and biomass is not growing as fast as the supply of electricity from guaranteed renewable sources. For 2030, the Group's objectives are to: ► reduce emissions from Group production facilities by 50% versus 2010 in absolute terms (indicator: tonnes of Scope 1 and 2 CO2 released); ► eliminate the use of coal to generate own or purchased heat (indicator: % of coal in our heat sources); ► improve production plant energy efficiency by 37% versus 2010 (indicator: MWh used per tonne produced). Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%. The ratio of CO2 emissions per tonne of output stood at 0.29, versus 0.32 in 2019.

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

<Not Applicable>

Target reference number

Abs 5

Year target was set

2022

Target coverage

Company-wide

Scope(s)Scope 1
Scope 2**Scope 2 accounting method**

Market-based

Scope 3 category(ies)

<Not Applicable>

Base year

2019

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

1493879

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

1730420

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

<Not Applicable>

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

3224299

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

100

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

100

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

<Not Applicable>

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

96

Target year

2030

Targeted reduction from base year (%)

27.5

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

2337616.775

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

1346122.73

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

1417620.72

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

<Not Applicable>

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

2763743.45

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

51.9414438470332

Target status in reporting year

New

Is this a science-based target?

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

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

Note: Michelin has prepared science-based targets on scopes 1,2 and 3 and submitted them to SBTi in October 2019. The targets were validated in May 2020 (Michelin submitted for all 3 scopes since scope 3 emissions are greater than 40% of the total). On scopes 1 and 2, Michelin committed to reduce absolute scope 1 and 2 GHG emissions by 38% by 2030 from a 2010 base year (abs1). To date Michelin is on track to meet this scope 1 and 2 ambition by 2030. Beyond this, Michelin has set a new long-term ambition to reach Zero Net Emissions on scopes 1 and 2 by 2050 (Abs2). A new intermediary target, in line with the new 2050 target, was set in the second half of 2020 to guide this process, based on a linear reduction pathway (Abs3). A new intermediary target, in line with our 2050 target, was set in 2022 and submitted for SBTi approval in the framework of the Race to 0 - 1,5°C Campaign - it includes recent acquisitions (Abs4). Operations excluded: Retail distribution (3 %) are excluded because they are not material against our primary operations. HFC (0,34%) are excluded because the quantities emitted are not material compared with primary operations. Facilities excluded: Wholesale distribution Michelin-owned warehouses are excluded because they are not material against our primary operations and industrial sites (0.59 %). Operations excluded : 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, validated by the SBTi in April 2020, we updated our estimate of all potential exclusions: together they represents 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.

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

As part of its commitment to achieving net-zero carbon emissions across its entire production base by 2050, the Group has set an intermediate target of reducing its emissions by 50% by 2030 compared to 2010. In addition to improving energy efficiency, the Group is exploring a wide array of sustainable solutions to use renewable sources to generate not only electricity but also heat by burning biomass and biogas as fuel. The latter is a more difficult challenge, as the commercial supply of sustainably produced biogas and biomass is not growing as fast as the supply of electricity from guaranteed renewable sources. For 2030, the Group's objectives are to: ► reduce emissions from Group production facilities by 50% versus 2010 in absolute terms (indicator: tonnes of Scope 1 and 2 CO2 released); ► eliminate the use of coal to generate own or purchased heat (indicator: % of coal in our heat sources); ► improve production plant energy efficiency by 37% versus 2010 (indicator: MWh used per tonne produced). Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%. The ratio of CO2 emissions per tonne of output stood at 0.29, versus 0.32 in 2019.

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

<Not Applicable>

Target reference number

Abs 4

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope 3

Scope 2 accounting method

<Not Applicable>

Scope 3 category(ies)

Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)

Category 4: Upstream transportation and distribution

Category 9: Downstream transportation and distribution

Category 12: End-of-life treatment of sold products

Base year

2018

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

<Not Applicable>

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

<Not Applicable>

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

5918947.35

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

5918947

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

<Not Applicable>

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

<Not Applicable>

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

34

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

34

Target year

2030

Targeted reduction from base year (%)

15

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

5031104.95

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

<Not Applicable>

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

<Not Applicable>

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

5939422.06

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

5939422.06

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

-2.30616020045453

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

2°C aligned

Please explain target coverage and identify any exclusions

Company-wide target that covers 34% of Scope 3 emissions. It focuses on the largest categories most relevant to our business activities: fuel and energy-related activities, upstream and downstream transportation and distribution and end-of-life treatment of sold products. (The largest category -- purchased goods and services -- is covered under a different SBTi-approved target for supplier engagement; it covers 38% of Scope 3 emissions, for a total of 72% coverage between the 2 targets.) The minor categories have been excluded; emission reduction activities for these categories are managed at a local level, as opposed to the corporate level for this target.

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

The emissions covered under this target actually increased in 2021 compared to 2018 by 0.35%. The increase occurred to upstream transport and distribution (Cat. 4): despite reductions from efficiency gains in Europe, North America and inter-continental, an increase in air freight was required for transporting natural rubber & semi-finished products due to continued shortages in maritime shipping availability stemming from the pandemic. Otherwise, emissions decreased in Cat. 3 and 9. Because Cat. 12 is strongly indirect in terms of influence and subject to low data availability and high uncertainty (+/-30%), we are unable to calculate an update for Year 2021; the emissions were held static.

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

<Not Applicable>

C4.2

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

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

Net-zero target(s)

Other climate-related target(s)

C4.2a

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

Target reference number

Low 1

Year target was set

2020

Target coverage

Company-wide

Target type: energy carrier

Electricity

Target type: activity

Consumption

Target type: energy source

Renewable energy source(s) only

Base year

2010

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

8612

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

0.2

Target year

2030

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

45

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

14.6

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

32.1428571428571

Target status in reporting year

Underway

Is this target part of an emissions target?

Abs 1, 2, 3 and 4

Is this target part of an overarching initiative?

Science Based Targets initiative

Please explain target coverage and identify any exclusions

In accordance with the GHG Protocol, Scope 1, 2 and 3 inventory is calculated for an overall base corresponding to the Group's consolidated financial reporting, with the calculations for each Scope based on GHG Protocol methodologies and guidelines. Operations excluded: Retail distribution (3 %) are excluded because they are not material against our primary operations. HFC (0,34%) are excluded because the quantities emitted are not material compared with primary operations. Facilities excluded: Wholesale distribution Michelin-owned warehouses are excluded because they are not material against our primary operations and industrial sites (0.61 %). Operations excluded : 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, validated by the SBTi in April 2020, we updated our estimate of all potential exclusions: together they represents 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.

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

The target is part of our new 2030 target (Abs 3, in line with SBTi WB2D criteria but not validated), as well as of our 2030 current SBTi target (Abs1, validated by SBTi as 2DS) and of our 2050 target to reach zero net CO2 emission vs 2010 (Abs 2, in line with Race to Zero - Business Ambition for 1.5°C). This target has not been set as a target in itself, but as a projection of what will be needed to reach our targets in absolute value by 2030 (Abs 3). A new intermediary target, in line with our 2050 target, was set in 2022 and submitted for SBTi approval in the framework of the Race to 0 - 1,5°C Campaign - it includes recent acquisitions (Abs4). The target is not part of RE100, but the criteria of our purchasing agreements to buy Guaranties of Origin and, increasingly, electricity from renewable sources with bundled EAC where they exist, are in line with RE 100 criterias.

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 2

Year target was set

2021

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Engagement with suppliers	Other, please specify (Purchasing spend amount covered by CSR assessments)
---------------------------	--

Target denominator (intensity targets only)

Other, please specify (Purchasing spend amount)

Base year

2021

Figure or percentage in base year

60

Target year

2030

Figure or percentage in target year

70

Figure or percentage in reporting year

65

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

50

Target status in reporting year

Underway

Is this target part of an emissions target?

Not part of emissions target

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

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 Sustainable Purchasing Policy released in 2021 introduced a new goal for 2030 to have 70% of the purchasing spend covered by supplier CSR surveys, covering the whole Group.

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

End of 2021, about 65% of the purchasing spend covered by supplier CSR surveys. Coverage increases as we are requesting more companies to respond to the CSR surveys, and are taking action to make sure that suppliers do respond.

List the actions which contributed most to achieving this target

<Not Applicable>

Target reference number

Oth 3

Year target was set

2020

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Engagement with suppliers	Other, please specify (Scope 3 category 1 emissions allocated to suppliers which have set a science-based target)
---------------------------	---

Target denominator (intensity targets only)

Other, please specify (Scope 3 category 1 emissions)

Base year

2019

Figure or percentage in base year

0

Target year

2024

Figure or percentage in target year

70

Figure or percentage in reporting year

21

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

30

Target status in reporting year

Underway

Is this target part of an emissions target?

Not part of emissions target

Is this target part of an overarching initiative?

Science Based Targets initiative – approved supplier engagement target

Please explain target coverage and identify any exclusions

This target is part of the SBT target that has been approved by the SBTi. The approved target is the following : "Michelin commits that 70% of its suppliers by emissions covering purchased goods and services will have science-based targets by 2024." Purchased goods and services emissions are represented by the Scope 3 category 1 emissions, per GHG protocol.

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

We have achieved 21%. However we have received formal commitments from most of the targeted suppliers to set a SBT by 2024.

List the actions which contributed most to achieving this target

<Not Applicable>

Target reference number

Oth 4

Year target was set

2016

Target coverage

Site/facility

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Land use change	Other, please specify (Area (ha) of degraded landscape planted with rubber trees)
-----------------	---

Target denominator (intensity targets only)

<Not Applicable>

Base year

2016

Figure or percentage in base year

0

Target year

2023

Figure or percentage in target year

34000

Figure or percentage in reporting year

23000

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

67.6470588235294

Target status in reporting year

Underway

Is this target part of an emissions target?

Not part of emissions target

Is this target part of an overarching initiative?

Remove deforestation

Please explain target coverage and identify any exclusions

This target corresponds to the reforestation of a part of 3 concessions totaling 88,000 ha in the provinces of Jambi (Sumatra) and North East Kalimantan (Borneo) which have been devastated by uncontrolled deforestation. Up to 34 000 will be planted with rubber trees.

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

• Our Indonesia JV continues to implement planting activity in accordance with HCV and HCS assessment results. • Planting activities follow the direction of the Chief Agricultural Officer, and consist of high-performing rubber tree varieties. • 23,000 hectares of rubber trees have been planted by the end of 2021.

List the actions which contributed most to achieving this target

<Not Applicable>

Target reference number

Oth 1

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency	GJ
----------------------------------	----

Target denominator (intensity targets only)

Other, please specify (metric ton of semi-finished and finished product)

Base year

2019

Figure or percentage in base year

4.398

Target year

2030

Figure or percentage in target year

3.346

Figure or percentage in reporting year

4.38

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

1.71102661596956

Target status in reporting year

New

Is this target part of an emissions target?

The target is part of our 2030 SBTi target (Abs2) and of our 2050 target to reach zero net CO2 emission vs 2010 (Abs 3) and of our recent SBTi submission (Abs 4).

Is this target part of an overarching initiative?

Science Based targets initiative - other

Please explain target coverage and identify any exclusions

In accordance with the GHG Protocol, Scope 1, 2 and 3 inventory is calculated for an overall base corresponding to the Group's consolidated financial reporting, with the calculations for each Scope based on GHG Protocol methodologies and guidelines. Operations excluded: Retail distribution (3 %) are excluded because they are not material against our primary operations. HFC (0,34%) are excluded because the quantities emitted are not material compared with primary operations. Facilities excluded: Wholesale distribution Michelin-owned warehouses are excluded because they are not material against our primary operations and industrial sites (0.61 %). Operations excluded : 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, validated by the SBTi in April 2020, we updated our estimate of all potential exclusions: together they represents 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.

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

In 2021, the Group's energy consumption stood at 4,380 GJ per tonne of semi-finished product+finished product. Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%. The ratio of CO2 emissions per tonne of output stood at 0.29, versus 0.32 in 2019.

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2c

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

Target reference number

NZ1

Target coverage

Company-wide

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

Abs2

Target year for achieving net zero

2050

Is this a science-based target?

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

Please explain target coverage and identify any exclusions

1/ The target is company-wide for scopes 1 and 2, except the 5 percent exclusion accepted by SBTi. 2/ Michelin has prepared science-based targets on scopes 1,2 and 3 and submitted them to SBTi in October 2019. The targets were validated in May 2020 (Michelin submitted for all 3 scopes since scope 3 emissions are greater than 40% of the total). On scopes 1 and 2, Michelin committed to reduce absolute scope 1 and 2 GHG emissions by 38% by 2030 from a 2010 base year (abs1). Since then, Michelin has set a new long-term ambition to reach Net Zero Emission on scopes 1 and 2 by 2050 (Abs2). A new intermediary target, in line with the new 2050 target, was set in the second half of 2020 to guide this process, based on a linear reduction pathway (Abs3). We aim at reaching both targets (2050 and 2030) on scopes 1 and 2 without offsetting (compensation). Using sustainably sourced biomass to produce thermal energy is part of our strategy 3/ Aligned with WB2D : This target is aligned with SBTi WB2D because it commits the Group to reach net zero no later than 2050 and comes with a mid term (2030) target involving a pace of progress better than 2.5 percent per year. Operations excluded: Retail distribution (3 %) are excluded because they are not material against our primary operations. HFC (0,34%) are excluded because the quantities emitted are not material compared with primary operations. Facilities excluded: Wholesale distribution Michelin-owned warehouses are excluded because they are not material against our primary operations and industrial sites (0.61 %). Operations excluded : 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, validated by the SBTi in April 2020, we updated our estimate of all potential exclusions: together they represents 4.25%, or less than 5% which is the maximum allowed according to the Greenhouse Gas Protocol.

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

Yes

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

No planned milestone or near term investments for neutralization included in our current roadmaps. Priority will be given to mitigation down to zero.

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

No offsetting planned to counterbalance Scope 1 & 2 emissions.

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	13	205000
To be implemented*	79	535000
Implementation commenced*	2	7000
Implemented*	14	75143
Not to be implemented	1	25000

C4.3b

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

Initiative category & Initiative type

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

Estimated annual CO2e savings (metric tonnes CO2e)

4713

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

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

1414000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

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

Estimated annual CO2e savings (metric tonnes CO2e)

4975

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

6383000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

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

Estimated annual CO2e savings (metric tonnes CO2e)

14533

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

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)

3473000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Cooling technology
---	--------------------

Estimated annual CO2e savings (metric tonnes CO2e)

3303

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

4238000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air
---	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

2190

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

2783000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Reuse of water
---	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

369

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

473000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Reuse of steam
---	----------------

Estimated annual CO2e savings (metric tonnes CO2e)

6742

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

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)

1611000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Smart control system
---	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

696

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

Scope 1
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

209000

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Energy efficiency in production processes	Motors and drives
---	-------------------

Estimated annual CO2e savings (metric tonnes CO2e)

1288

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

1652000

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Initiative category & Initiative type

Other, please specify	Other, please specify (Utilities)
-----------------------	-----------------------------------

Estimated annual CO2e savings (metric tonnes CO2e)

10717

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

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)

2561000

Payback period

4-10 years

Estimated lifetime of the initiative

>30 years

Comment

Initiative category & Initiative type

Company policy or behavioral change	Other, please specify (Change management on site)
-------------------------------------	---

Estimated annual CO2e savings (metric tonnes CO2e)

1719

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

Scope 1
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

516000

Payback period

1-3 years

Estimated lifetime of the initiative

3-5 years

Comment

Initiative category & Initiative type

Other, please specify	Other, please specify (Bp curing and mixing)
-----------------------	--

Estimated annual CO2e savings (metric tonnes CO2e)

11207

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

Scope 1
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

3620000

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Initiative category & Initiative type

Other, please specify	Other, please specify (Process electrification)
-----------------------	---

Estimated annual CO2e savings (metric tonnes CO2e)

705

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

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)

1460000

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

Initiative category & Initiative type

Low-carbon energy consumption	Solar PV
-------------------------------	----------

Estimated annual CO2e savings (metric tonnes CO2e)

11986

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	In 2021, the energy efficiency improvement program was supported by €37 million in capital expenditure.
Internal price on carbon	In 2015, the Group made the decision to introduce an internal CO2 price in its return on investment (ROI) analysis tools as a decisionmaking element. As of 2016, the price has been set at €50 per ton of CO2. In April 2021, it was updated to €100 per ton of CO2.
Other (Engagement with energy project managers.)	Method: Engagement with energy project managers. On each energy-saving project, the impact of CO2 reductions on the Michelin Environmental Footprint (MEF) is highlighted.
Other (Energy portfolio oversight.)	Method: Energy portfolio oversight. The corporate Energy and CO2 Expert Team, covering all industrial operations in its scope, oversees all projects involving energy transformation or major energy efficiency gains.
Financial optimization calculations	In 2020, Michelin initiated an exercise to place a monetary value on its environmental impacts, starting with the ones addressed by commitments to the planet. Undertaken as part of the "All Sustainable" vision, the exercise is designed to facilitate the representation of environmental issues, enhance transparency with stakeholders and provide a valuation method for use in assessing the performance of Group units or during acquisitions. The initial valuation, whose methodology is described below, was performed on the basis of volumes in 2019, which was chosen as a baseline because it was the last year before the health crisis. These volumes are as follows: ► Total tonnes of CO2 emissions in Scopes 1 and 2. ► Total tonnes of CO2 emissions in part of Scope 3, covering the upstream and downstream transportation and distribution of natural rubber, semi-finished products and finished products. More info in Michelin 2021 URD page 246.

C4.5

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

Yes

C4.5a

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

Level of aggregation

Group of products or services

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

The EU Taxonomy for environmentally sustainable economic activities

Type of product(s) or service(s)

Other	Other, please specify (Low-rolling-resistance tires)
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Description of product(s) or service(s)

EU-Taxonomy eligible tires comply with the "low carbon intensity" concept, based on: ► the direct link between tires' rolling resistance (RR) and the reduction in emissions for the transportation industry, ► Michelin's decades-long track record of steadily reducing the RR of its tires to improve fuel efficiency and thereby decarbonize the transportation industry, and its commitment to continue improving the energy efficiency of its products (targeted 10% improvement over the 2021-2030 decade); ► the exclusion from eligible activities of passenger car, light truck and truck tires with RR class E, which is the least efficient. The European classes have been translated into minimum RR standards, expressed in kg/t, so that every tire sold around the world can be compared to a universal criterion. Michelin tires of RR classes A, B, C and D are considered eligible under the EU Taxonomy (it represents 57% of Michelin tires' sales in 2021), and only classes A and B are considered aligned (max RR: 7.7kg/t for passenger car tyres, 6.7kg/t for light truck tyres, 5kg/t for truck tyres). RR classes E are excluded.

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

No

Methodology used to calculate avoided emissions

<Not Applicable>

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

<Not Applicable>

Functional unit used

<Not Applicable>

Reference product/service or baseline scenario used

<Not Applicable>

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

<Not Applicable>

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

<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions

<Not Applicable>

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

57

C5. Emissions methodology

C5.1

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

No

C5.1a

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

Row 1

Has there been a structural change?

Yes, other structural change, please specify (Acquisitions and divestments)

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

Main acquisitions: Fenner PLC, Camso, PT Multistrada Arah Sarana TBK Main divestments: TCI Tire Centers LLC

Details of structural change(s), including completion dates

Fenner and Camso: acquired in 2018, both with majority financial control, and integrated into GHG inventory as of year 2019, per GHG Protocol "financial control" criteria regarding the organizational boundary. Multistrada: acquired in 2019 and integrated into the GHG inventory as of year 2019, per GHG Protocol "financial control" criteria regarding the organizational boundary. TCI: Progressive divestments in 2018 and 2019, with full divestment completed by end 2019. As an activity that had been included in Scope 1, 2 and 3 exclusions (under the overall total of 5%), the GHG inventory itself was not impacted by the divestment.

C5.1b

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

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in methodology No, but we have discovered significant errors in our previous response(s)	Scope 3 base emissions for year 2018 and thereafter were refined. The previous Scope 3 inventory for 2018 was based on the best data available at the time, which were for year 2016. Since then, a major inventory update was conducted, including data collected for year 2018. In addition, refinements were made to CO2 emission factors for Categories 1, 2 and 3, methodology refinement and data gaps filled for Categories 4 and 9, and integration of acquired companies.

C5.1c

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

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	Yes	The triggers described below encompass all the triggering elements described in the GhG Protocol and SBTi guidance documents. The significance thresholds for each trigger category and for Scope 1&2 combined, and for Scope 3 is 5%. The categories of triggers for recalculating SBTi base year and targets are the following: a) Calculation methodology and accuracy: Discovery of significant errors (that are collectively significant) and/or changes in calculation methodology or improvements in the accuracy of emission factors; b) Structural changes: External growth or decrease through mergers, acquisitions, and divestments and/or outsourcing and insourcing of emitting activities that implies emission transfer from one scope to another ; c) Growing exclusions: Allowable exclusion limits are exceeded.

C5.2

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

Scope 1

Base year start

January 1 2010

Base year end

December 31 2010

Base year emissions (metric tons CO2e)

1832384

Comment

Scope 2 (location-based)

Base year start

January 1 2010

Base year end

December 31 2010

Base year emissions (metric tons CO2e)

2237051

Comment

Scope 2 (market-based)

Base year start

January 1 2010

Base year end

December 31 2010

Base year emissions (metric tons CO2e)

2234380

Comment

Recalculation of base year emissions carried out 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, 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 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 base for our SBTi submission (2030 targets) on the 2010 industrial footprint perimeter. The recalculated 3 850 000 tonnes consists in 1,833,070 tonnes in scope 1 (unchanged) and 2 015 503 tonnes in market-based scope 2.

Scope 3 category 1: Purchased goods and services

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

9398623

Comment

Scope 3 category 2: Capital goods

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

547509

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

746963

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

1213652

Comment

Scope 3 category 5: Waste generated in operations

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

342948.955

Comment

Scope 3 category 6: Business travel

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

43676

Comment

Scope 3 category 7: Employee commuting

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

213483

Comment

Scope 3 category 8: Upstream leased assets

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

42172

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

934590

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

This category is irrelevant for Michelin.

Scope 3 category 11: Use of sold products

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

127533671.011

Comment

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

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

3717842.477

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

This category is irrelevant for Michelin.

Scope 3 category 14: Franchises

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

229441.06

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

This category is irrelevant for Michelin.

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

This category is irrelevant for Michelin.

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

This category is irrelevant for Michelin.

C5.3

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

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

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

1346122.735

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%.

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

1880571

Scope 2, market-based (if applicable)

1417621

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

Total tonnes of CO2 released from the Group's production plants, which had decreased by 25% over the 2010-2019 period, declined by a further 5.3% in 2021 compared to 2019 (29% versus 2010), despite the wider scope of reporting following the inclusion of a synthetic rubber plant in Indonesia and a tire plant in Mexico. Without this organic growth, the 2021 decline from 2019 would have been 10%.

C6.4

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

Yes

C6.4a

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

Source

Tire distribution centers, retail and wholesale

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

Retail distribution (2.29 %) are excluded from the Scopes 1&2 inventory because they are not material against our primary operations.

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

2

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

Facilities and operations : inventory estimate of quantities of energy consumed multiplied by Emission factor The "Estimated percentage of total Scope 1+2 emissions this excluded source represents" field does not allow us to put decimal places. The Estimated percentage of total Scope 1+2 emissions Tire distribution centers, retail and wholesale source represents 2.29%

Source

HFC gases

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

HFC (0.36%) are excluded because the quantities emitted are not material compared with primary operations. They are part of the 3.18% excluded from the Scopes 1&2 inventory.

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

0

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

Historical leakage volume inventory multiplied by emission factors. The "Estimated percentage of total Scope 1+2 emissions this excluded source represents" field does not allow us to put decimal places. The Estimated percentage of total Scope 1+2 emissions HFC gases source represents 0,36%

Source

Michelin-controlled warehouses

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

Wholesale distribution Michelin-owned warehouses are excluded from Scopes 1&2 because they are not material against our primary operations and industrial sites (0.35%).

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

0

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

Facilities and operations : inventory estimate of quantities of energy consumed multiplied by Emission factor. The "Estimated percentage of total Scope 1+2 emissions this excluded source represents" field does not allow us to put decimal places. The Estimated percentage of total Scope 1+2 emissions Michelin-controlled warehouses source represents 0,35%

Source

Michelin Air Service (France-based corporate airlines)

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

Michelin Air Service (0.19 %) are excluded from the Scopes 1&2 inventory because they are not material against our primary operations.

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

0

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

Facilities and operations : inventory estimate of quantities of energy consumed multiplied by Emission factor. The "Estimated percentage of total Scope 1+2 emissions this excluded source represents" field does not allow us to put decimal places. The Estimated percentage of total Scope 1+2 emissions Michelin Air Service (France-based corporate airlines) source represents 0,19%

C6.5**(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.****Purchased goods and services****Evaluation status**

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

9035523

Emissions calculation methodology

Hybrid method

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

20

Please explain

i. Data used: Two types of data are used for the calculation of category 1: - Raw materials : An extraction of the the total global raw materials, broken down into ~70 purchasing families. For each line, the weight in tons purchased is provided. - Services and other purchases. An extraction of the total purchases of other goods and services, broken down into ~250 purchasing families, and a selection of the relevant families. Purchases are expressed in monetary terms, with the amount purchased expressed in euros. For each category, a GHG EF (secondary data) from a representative product/service is selected. EFs were obtained from 2 sources: 1) from ecoinvent and drawing on the environmentally-extended Input-Output Model Exiobase database; 2) some emission factors were provided by Michelin's LCA expertise team, following studies to develop more specific EFs rather than rely on generic EFs. ii. Methodology:- Raw materials. The mass purchased is multiplied by the selected EF. The database used is ecoinvent v.3, with a modelisation adapted by the LCA specialists for most of the raw materials. Global Warming Potential used comes from IPCC 2013 GWP 100-year values. Some EFs are based on specific EFs for Michelin raw materials. Some significant changes to EFs were made to 2018-2021 data compared to 2016 data. In addition, more Michelin-developped EFs have been used since 2016. - Services and purchases of other goods. Each sub-category or flow within the categories is associated with an economic sector from the environmentally-extended Input-Output Model Exiobase. The model provides data for the year 2018, which was used for calculations made for years 2018 to 2021 with no correction regarding inflation or efficiency. The amount spent in each sub-category is then multiplied by the sector unit GHG EF. An exception is the EF for industrial gases (such a nitrogen) which was calculated from supplier data gather through the CDP Supply Chain questionnaires. iii. Quality: The quality of the primary data used is considered high. All purchases were assessed with an emission factor. Simplifications of modeling remain highly reduced. The results quality is therefore also considered high. Uncertainty is estimated at +/-15%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020 and again in 2022.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

538479

Emissions calculation methodology

Average spend-based method

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

0

Please explain

i. Data used: The primary data used cover the purchases from fixed assets and supplies for the considered year in monetary terms, which include a selection of a portion of the circa 250 categories mentioned above (cat 1). For each category, a GHG emission factor was selected from the input-output database referenced above. 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 2019. 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. iii. Quality: The quality of the primary data used is high. However, due to the simplification involved in the modeling, 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 proxys for the assessment. Uncertainty is estimated at +/-30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020 and again in 2022.

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

738978

Emissions calculation methodology

Average data method

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

100

Please explain

i. Data used: The primary data used are the types and quantities of fuels, electricity and heat purchased worldwide under scopes 1 & 2 and the allocated emission factors. For quantities, aggregated values for all countries were gathered. ii. Methodology: The emissions were calculated by multiplying fuel quantities, electricity and heat purchased by the specific emission factors related to their upstream production and energy losses from their transformation and distribution for the different countries. Emission factors from the International Energy Agency (IEA) were used in order to be consistent with the Scope 2 calculation. Previously, the 2016 calculation used DEFRA emission factors for electricity. Now, the Scope 3 electricity EFs are calculated as the difference between Scope 2 EFs (from IEA) and the combined Scope 2&3 EFs (fromecoinvent, including all scope 2 and 3 emissions with all WTT, infrastructure and direct emissions). Renewable energy emissions are based on the different production technologies of renewable sources, obtained from the French energy agency ADEME Base carbone. Upstream fuel emission factors are sourced from ADEME Base Carbone. Only the net energy consumption is considered: electricity and fuel consumed minus the sold energy (Michelin produced energy -- electricity and steam -- from cogeneration). iii. Quality: The quality of the primary data used (energy consumption) is high. The quality of the emissions factors is high except for renewable electricity EF, where quality is medium since it is based on an average. Thus, the quality of the category is estimated as high. Uncertainty is estimated at ±15%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020 and again in 2022.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

1533012

Emissions calculation methodology

Hybrid method

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

50

Please explain

i. Data used: - Raw material transport The primary data used is: the quantity of purchased goods provided for category 1 (purchased goods and services), their origin and destination countries, as well as the supply transportation mode. This represents a total of over 2,400 lines of information. Michelin plant locations within each country were 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 exclude intermediate storage due to lack of supplier data. - Natural rubber & semi finished products transport Same as for Category 9. ii. Methodology: - Raw material transport Distances were rounded to represent generic geographical areas (i.e., by continent). For internal transportation (within a country), generic yet realistic distances were chosen. After analyzing the data, 13% of the lines were identified as "probably inconsistent data". These lines involve intercontinental transport with road transport. The most probable cause is that several means of transport are used for the line item, but only one of them has been filled in. These transport line items were all designated "intermodal", defined as 40% road, 40% water and 20% rail. This approach is more conservative than using an EF for sea transport, resulting in an overestimation of the CO₂ impact. The CO₂ impacts were determined by multiplying the amount of transported goods by the estimated distance, and the EF corresponding to the mode of transportation. The EFs associated with each mode of transportation (secondary data) were taken from the ecoinvent v.3 database, and GWP from IPCC 2013 GWP 100-year. A distinction was made between full and partial load vehicles. - Natural rubber & semi finished products transport Same as for Category 9. iii. Quality: The quality of the primary data used is medium (due to inconsistencies) and the quality of the secondary data is high. In addition, some extrapolations (coming from rounding transport distances to continent) produced data considered to be medium quality. On average, the quality of the results is considered medium. Uncertainty is estimated at +/- 30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020 and again in 2022.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

342949

Emissions calculation methodology

Waste-type-specific method

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

100

Please explain

i. Data used: The primary data used for this category are the amount of waste generated at production sites in 2017. The total amount of waste was given along with hypothesis on the end-of-life (EoL) destination per type of waste. More disaggregated data has been provided for this year calculation. ii. Methodology: An expert consultant developed the overall method. Supplier data were processed to distinguish each waste type and EoL scenario. Each waste flow considered has a specific EoL recovery associated with an emission factor to assess the GHG emissions of the treatment (ecoinvent v.3). For tire waste, EFs based on the Aliapur 2009 LCA study were used, with some modifications made for more accuracy. They distinguish between the emissions of the main components of tires (natural rubber, synthetic rubber, steel and textiles). For the other types of waste, EFs for the recovery processes were updated. For some of the waste recycled, considering the limited information available in LCA databases, proxies were used to estimate the impacts. Transportation to EoL treatment centers was excluded from the modeling except for datasets based on the Aliapur study. Facilities are amortized over several years, so the impacts are marginal at the scale of 1 tonne 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 EFs are not available and disposal is considered by default to occur via incineration. iii. Quality: The quality of the primary data used is medium due to consolidation into Group-level totals for several main recovery outlets. This and the simplification involved in the modeling (i.e., no geographical differentiation of waste treatment) result in the overall quality estimated as medium. Uncertainty is estimated at +/- 30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

43676

Emissions calculation methodology

Distance-based method

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

100

Please explain

i. Data used: The primary data was collected from different sources: - Car rental distances and other rental information were provided by Hertz. Emission factors were not provided by the vendor. - Train and air travel trips from Michelin's corporate travel agency were provided covering the full geographic scope of activities. - Vehicle leasing data were transferred and used for the Category 8 calculation. ii. Methodology: An expert consultant developed the overall method: - Car rental emissions -- Distances were provided by Hertz. An average emission factor from the ICCT (average emissions of 2018 manufactured vehicles) was used. The emission factor only considers the direct emissions (TTW - Tank To Wheel). The same emission factor has been used for all vehicles. The emission factor in kg CO₂ eq/km has been multiplied per the traveled distance. - Air travel -- GHG emissions were directly calculated by Michelin's business travel management provider and were checked by the expert consultant. - Rail travel -- GHG emissions were directly calculated by Michelin's business travel management provider and were checked by the expert consultant. iii. Quality: The overall quality of the emissions is estimated as medium considering the use of an average emission factor for car rental emissions and the non availability of travelled distances by plane and train. Uncertainty is estimated at +/- 30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

213483

Emissions calculation methodology

Average data method

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

0

Please explain

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: An expert consultant developed the overall method. 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 energy agency) 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. Uncertainty is estimated to be between ±20% and ±25%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Upstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

42172

Emissions calculation methodology

Average data method

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

66

Please explain

i. Data used: The primary data were collected from several sources: -Vehicle leasing. Service providers' contract extractions including direct emissions for each vehicle type. -Machinery and equipment leasing & real estate rentals. An extraction of the total purchases of other goods and services, broken down into 255 purchasing families, valid for 2019. Purchased are expressed in monetary terms (in €). Only leased goods have been included for the calculation of this category. ii. Methodology: An expert consultant developed the overall method. Vehicle leasing: The leasing mileage data from service provider were checked. The contractual distance was used as proxy for the real distance. The distance per contract was multiplied by the EF provided by the service provider (in g CO₂ eq / km). When not available, a generic EF was applied. For combustion vehicles, the EF used is the average of the direct emissions from the average combustion emissions of vehicles manufactured in 2018 according to ICCT 2019 data. For electric vehicles, the electricity consumption in kWh/km came from the ecoInvent v3 database. Electricity consumption was multiplied by the country EF (International Energy Agency). In one case, for vehicles missing the annual mileage, an average was used. For electricity, IEA 2018 data from 2016 was used. Equipment leasing & real estate rentals: Each sub-category or flow within the categories was associated with an economic sector from the environmentally-extended Input-Output Model Open IO v1.4 (2002), adjusted for inflation, purchasing power parity and energy efficiency of the global economy in 2019. Each sub-category spend was then multiplied by the sector unit GHG EF. iii. Quality: For vehicle leasing, the quality of the emissions is estimated as medium. Despite the high quality of EFs provided by service providers, some distances and EFs had to be added because information was missing. Actual mileage is not known, requiring the use of contractual mileage. For equipment leasing & real estate rentals, the quality of the primary data used is high. However, due to the simplification involved in the modeling, the quality of the emissions data is considered as medium. Uncertainty is estimated at ±30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

826335

Emissions calculation methodology

Distance-based method

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

100

Please explain

i. Data used Emissions from the transport and distribution of finished products were calculated using EcoTransIT World, compliant with EN 16258 (Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers)) and aligned with the GLEC (Global Logistics Emissions Council) Framework. It is the most widely used software worldwide for automatic calculations of energy consumption, carbon emissions. EcoTransIT World determines the emissions using an energy-based bottom-up approach. That means the emissions are determined on the basis of the energy consumed and the fuel used, in contrast to a top-down approach, in which gCO₂e / tkm are multiplied by the freight weight and a distance. The bottom-up approach simulates the complete transport system. This ranges from the type of road, to the vehicle class with corresponding properties, to the fuel. This method makes EcoTransIT World flexible for updates because to map new types of fuel or vehicle technologies, only one parameter needs to be adjusted in the calculation workflow. The primary data comes from internal supply chain routing information, vehicle and route attributes, freight weight and load, fuel type and distances traveled. Warehouse-related emissions were accounted for either under Scopes 1 & 2 or under Scope 3 Category 1 (Purchased goods and services). ii. Methodology: Carbon emissions were calculated using the EcoTransIT tool, which provides the EFs and the calculation formulas. The steps are 1) determine the internal routing for determination of routes; 2) subdivide the route into calculation sections via split (truck, train, ferry, sea ship); 3) calculate the energy consumed and GHG emissions for each section; 4) totalize all the section results. iii. Quality: The overall quality of the emissions is estimated as medium to high considering that EcoTransit takes into account the load levels of each mode of transportation and has more disaggregated EF than ecoinvent. Uncertainty is estimated at +/- 15%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020 and again in 2022.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

No particular processing of sold intermediate products by third parties subsequent to sale is required so this category is not relevant to our organization.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

127533671

Emissions calculation methodology

Methodology for indirect use phase emissions, please specify (See explanation)

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

0

Please explain

i. Data used Use of sold products is evaluated for all ranges of light and heavy tires according to the road transport categories of the International Energy Agency's Mobility Model (<https://www.iea.org/areas-of-work/programmes-and-partnerships/mobility-model>). Two-wheel and off-road vehicle tires and products under the Michelin Lifestyle Ltd line were not included as their contribution to CO₂ impacts is not material (less than 3% of the category). The primary data come from 3 sources: 1) the most recent historical data (year 2015) on worldwide tank-to-wheel CO₂ emissions for road transport in the IEA Mobility Model, 2019 Global EV Outlook version; 2) Michelin market share in units of for all ranges of light and heavy tires for year 2019; and 3) growth rate in Michelin tire production from 2015 to 2019. ii. Methodology: Allocation of the carbon emissions of road transport vehicles to the tire: fuel consumption (and by proxy CO₂ emissions) associated with tire rolling resistance was determined as an average percentage for passenger & light duty vehicles (20% of vehicle fuel consumption) and for light commercial vehicles/medium freight trucks/heavy freight trucks/bus & minibus tires (33% of vehicle fuel consumption), respectively. Then Michelin's 2019 market share was applied to determine the worldwide TTW CO₂ emissions allocated to Michelin tires in use. Finally the total was extrapolated from 2015 to 2019 based on Michelin's actual tire production growth rate for this period to produce the final result. iii. Quality: The overall quality of the emissions is estimated as medium considering the data source (2019 version of the 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 by Michelin during the year. Also, emissions are extrapolated from 2015 data using an average growth rate, but without considering the type of vehicle sold per family (i.e., emissions for passenger cars depend on the type of passenger cars sold). Uncertainty is estimated at ±30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

3717842

Emissions calculation methodology

Average data method

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

0

Please explain

i. Data used: Primary data are the tonnage of tires sold per country by Michelin in 2019. Tonnage is divided per category of tires. End-of-life tire (ELT) statistics were sourced from the study "Global ELT Management – A global state of knowledge on regulation, management systems, impacts of recovery and technologies", WBCSD & Tire Industry Project, December 2019. Other end-of-life products (Michelin Travel Partner and Michelin Lifestyle Limited) were excluded because their contribution was determined as insignificant (2% of the category). ii. Methodology: An expert consultant developed the overall method. Raw data from the above ELT study were used to calculate the tonnages per type of end of life outlet (material recycling, energy recovery, civil engineering and backfilling and others/unknown) per geographical area. The study covers 14 geographical areas (83.5 % of the world tire market). 84% of Michelin's sales are covered by geographical areas documented in the study. Using the per-country tonnages mentioned above, the tonnage of products sold per country was allocated the end-of-life scenario (combination of ELT outlets) of that country on a pro-rata basis. For countries with sold products that were not included in the study, the worldwide average was used. Then, each tonnage was multiplied by the EF specific to each ELT outlet. No benefits were considered because they are not included in the boundaries of the Scope 3 methodology defined by the GHG Protocol. EFs used for the ELT are calculated based on the Aliapur 2009 LCA, covering 9 types of tires end of life). More recent and precise data for ELT EFs do not exist. However, each EF was refined by considering the specific EFs of the main components of the tire: natural & synthetic rubber, metal and textile. iii. Quality: The overall quality of the emissions is estimated as medium. On the one hand, more precise tire sales data, per country, were used. On the other hand, the worldwide ELT data in the 2019 report is less complete in coverage compared to the previous report from January 2018, and data is less accurate, e.g., for China, 61% of tires are recovered with an undetermined EoL (representing 31% of global ELT). Uncertainty is estimated at ±30%. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO₂e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Michelin does not own downstream assets that are leased to other entities not included in Scope 1 or 2 so this category is not relevant to our organization.

Franchises

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

229441

Emissions calculation methodology

Average data method

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

0

Please explain

i. Data used: Primary data are the number of franchise sites for each country, an electricity consumption audit of French distribution outlets franchises and a report on CO2 emissions of Michelin-owned distribution sites for comparison. ii. Methodology: An expert consultant developed the overall method. An average electricity consumption per m2 was calculated from data available in the distribution outlet audit. This file is an audit of energy consumption of 20 sites in France. The audit only reflects electricity consumption. An average area per franchise was obtained from this report. Average fuel and gas consumption was calculated from the study of Michelin-owned sites. This file is a report of emissions from 2012 data. It considers gas, fuel and electricity consumption of distribution centers in 11 countries. The report considers the total energy consumption, without considering the surface of the sites. A more recent source is not available. With information from this file and the calculation of the electricity consumption / m2, the average gas and fuel consumption / m2 of distribution centers was estimated. Regarding the number of franchises per country, some figures had to be adjusted to consider just Michelin franchises and not owned stores. The number of stores per country was multiplied per the average area and the average electricity, fuel and gas consumption per m2 to obtain the total energy consumption. Then, energy consumption was multiplied by IEA emission factors for electricity, and ADEME Base carbone emission factors for fuel and gas consumption. The IPCC 2013 GWP 100 was used. iii. Quality: The overall quality of the emissions is estimated as medium to high. Uncertainty is estimated to be between $\pm 20\%$ and $\pm 25\%$. iv. Verification: The overall method was checked by an expert consultant in 2020. The results were subject to external verification in 2020.

Investments

Evaluation status

Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Michelin does not provide financial services nor does its main activity is not relate 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.), so this category is not relevant to our organization.

Other (upstream)

Evaluation status

Not evaluated

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Not evaluated

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Please explain

C6.7

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

Yes

C6.7a

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

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
Row 1	29183	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 Maitrise de l'Energie) prescribes the use of "0" Emission Factors for biomass and biogas combustion. The same goes for the European Emission Trading Scheme that do not require allowance surrendering for CO2 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 by 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 deemed to grow, as they will replace a part of our fossil fuels.

C6.10

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

Intensity figure

0.0001161

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

2763743

Metric denominator

unit total revenue

Metric denominator: Unit total

23795000000

Scope 2 figure used

Market-based

% change from previous year

3.46

Direction of change

Decreased

Reason for change

In 2021, Michelin's total revenue (net sales) increased quicker than the related CO2 emissions, following the rebound in local economies after the Covid-19 crisis. The latter negatively impacted Michelin's activities mainly in 2020 (decrease in net sales and in CO2 emissions). Hereby, the emissions decrease in year 2021 is the result, mainly, of the energy efficiency and renewable energy initiatives implemented in 2021 and described in C4.3a and 4.3b.

Intensity figure

0.84

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

2763743

Metric denominator

metric ton of product

Metric denominator: Unit total

3289207

Scope 2 figure used

Market-based

% change from previous year

3.3

Direction of change

Decreased

Reason for change

In 2021, the total production in tonnes of products increased quicker than the related CO2 emissions, following the rebound in local economies after the Covid-19 crisis. The latter negatively impacted Michelin's activities mainly in 2020 (decrease in net sales and in CO2 emissions). Hereby, the emissions decrease in year 2021 is the result, mainly, of the energy efficiency and renewable energy initiatives implemented in 2021 and described in C4.3a and 4.3b.

C7. Emissions breakdowns

C7.1

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

No

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Europe	778779
Asia, Australasia	40210
Americas	527134

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Production of passenger car and light truck tires, in Europe	468315
Production of truck tires, in Europe	113968
Production of two-wheel vehicles, aviation, agriculture and earth-moving engines, heavy-duty equipment, worldwide	87109
Production of semi-finished products to make all types of tires marketed by Michelin	364133
Research and develop activities, including testing tracks	8841
Production of passenger car and light truck tires, in North America	198834
Production of truck tires in North America and all kinds of tires in South America	89137
Production of all kinds of tires in Asia	15785

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Europe	472307	114321
Asia, Australasia	692799	667719
Americas	715464	635581

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Production of passenger car and light truck tires, in Europe	353680	77320.91
Production of truck tires, in Europe	125773.1	36890.23
Production of two-wheel vehicles, aviation, agriculture and earth-moving engines, heavy-duty equipment, worldwide	65117.56	51183.22
Production of semi-finished products to make all types of tires marketed by Michelin	266460.59	236920.15
Research and develop activities, including testing tracks	17881.4	12593.13
Production of passenger car and light truck tires, in North America	473159.29	473159.29
Production of truck tires in North America and all kinds of tires in South America	92401.01	52655.85
Production of all kinds of tires in Asia	486097.6	476897.96

C7.9

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

Decreased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	5800	Decreased	0.2	Calculation method: $(-5800/2\ 919\ 165) = -0,20\%$ In 2020, three new solar power units came on line : 1/in Phrapadaeng and Laem Chabang, Thailand, the 0.99 MWp photovoltaic panels installed on the plant rooftop and the parking lot shade roofs were commissioned in the first half. Over the year, they generated a total of 700 MWh of power, with full-year capacity of the entire installation rated at around 1,500 MWh; 2/ in Chennai, India, 4.2 MWp of rooftop photovoltaic panels came on line in June 2020 and generated 2,300 MWh of power used entirely on-site. Annual output is rated at 5,500 MWh, or 10% of the facility's needs.
Other emissions reduction activities	91052	Increased	3.12	Calculation method : $91\ 052/2\ 919\ 165 = + 3,12\%$ Degradation of energy efficiency ratio In 2020, the Group's energy consumption stood at 12.36 GJ per tonne of finished product, down 14.1% on 2010 but up 3.7% year-on-year. The 2020 performance was severely impacted by the Covid-19 crisis, with tire production volumes declining by 16.2% over the year making it difficult to reach the performance levels expressed as a ratio. Given that a proportion of consumed energy is fixed, it could not be reduced in line with the contraction in production volumes. However, this major crisis forced the plants to work on their fixed energy use, which enabled local teams to gain a better understanding of the sensitivity of the process to wide swings in output and to improve their ability to manage facility shutdown and restart procedures. The progress made through the energy efficiency initiatives (decrease in 24,169 tonnes) was overwhelmed by the negative volume effect, resulting in a strong decrease in energy efficiency.
Divestment	0	No change	0	The impact of divestment and acquisitions is taken into account through the change in energy efficiency combined with the change in output.
Acquisitions	0	No change	0	The impact of divestment and acquisitions is taken into account through the change in energy efficiency combined with the change in output.
Mergers	0	No change	0	
Change in output	471765	Decreased	16.16	Calculation method : $-471\ 765/2\ 919\ 165 = -16,16\%$ The drop in output is due to the Covid crisis.
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	0	No change	0	
Other	63174	Decreased	0.24	Switch from coal to gas : Calculation method : $-7000/2\ 919\ 165 = -0,24\%$ Replacement of coal by gas at Olsztyn facility : Today, four of the Group's manufacturing facilities are still equipped with coal-fired boilers, in Olsztyn (Poland), Louisville KY (United States), Bassens (France) and Pirot (Serbia), while another, in Shenyang, China, purchases steam from a coal-fired plant. In 2018, the Environmental Governance body (2) approved the goal of eliminating coal as an energy source in the production plants by 2030. Studies to replace coal with natural gas, biomass or other primary energy source are under way at four of the five plants. In an initial step towards going coal-free, the Olsztyn plant has installed a gas-fired boiler that came on line in mid-2020 and is expected to supply 20% of its thermal energy. Change in Grid Power Emission factors : Calculation method: $(-5\ 6174/2\ 919\ 165) = 1,92\%$

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	5502874	5502874
Consumption of purchased or acquired electricity	<Not Applicable>	1980810	2715483	4696292
Consumption of purchased or acquired heat	<Not Applicable>	158526	1161468	1319994
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	2139335	9379824	11519159

C8.2b

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

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

C8.2c

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

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

68375.64

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

Other biomass

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

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

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

0

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

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

1517158

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

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

33004

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

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

3930429

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

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

22282

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

Total fuel

Heating value
LHV

Total fuel MWh consumed by the organization
5571249

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

C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	0	0	0	0
Heat	4601585	4285598	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2e

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

Sourcing method

Heat/steam/cooling supply agreement

Energy carrier

Heat, steam and cooling combined

Low-carbon technology type

Other biomass

Country/area of low-carbon energy consumption

France

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

36645

Country/area of origin (generation) of the low-carbon energy or energy attribute

France

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

Comment

Sourcing method

Heat/steam/cooling supply agreement

Energy carrier

Heat, steam and cooling combined

Low-carbon technology type

Sustainable biomass

Country/area of low-carbon energy consumption

France

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

61555

Country/area of origin (generation) of the low-carbon energy or energy attribute

France

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

Comment

Sourcing method

Other, please specify (Power purchase agreement (PPA) with onsite/ off-site generator owned by a third party with no grid transfers (direct line))

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

Thailand

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

9398

Country/area of origin (generation) of the low-carbon energy or energy attribute

Thailand

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

Comment

The considered region is Asia Pacific (Thailand + India)

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

France

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

567372

Country/area of origin (generation) of the low-carbon energy or energy attribute

France

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

Comment

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Spain

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

194361

Country/area of origin (generation) of the low-carbon energy or energy attribute

Spain

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

Comment

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Wind

Country/area of low-carbon energy consumption

Spain

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

293801

Country/area of origin (generation) of the low-carbon energy or energy attribute

Spain

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

Comment

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Wind

Country/area of low-carbon energy consumption

Italy

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

18935

Country/area of origin (generation) of the low-carbon energy or energy attribute

Italy

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

Comment

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Romania

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

172066

Country/area of origin (generation) of the low-carbon energy or energy attribute

Romania

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

Comment

Sourcing method

Unbundled energy attribute certificates (EACs) purchase

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Germany

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

85589

Country/area of origin (generation) of the low-carbon energy or energy attribute

Germany

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

Comment**Sourcing method**

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Sustainable biomass

Country/area of low-carbon energy consumption

Please select

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

6313

Country/area of origin (generation) of the low-carbon energy or energy attribute

Please select

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

For confidentiality reasons, the Group does not communicate site-level energy consumption data. In countries where the Group has only one factory, this means that communicating data at country level would come down to communicating site-level data. To be able to provide a response, in this line, we have summed up the consumption 3 European countries (Poland, Hungary and the UK).

Sourcing method

Other, please specify (Unbundled energy attribute certificates, Guarantees of Origin)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Please select

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

38891

Country/area of origin (generation) of the low-carbon energy or energy attribute

Please select

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

For confidentiality reasons, the Group does not communicate site-level energy consumption data. In countries where the Group has only one factory, this means that communicating data at country level would come down to communicating site-level data. To be able to provide a response, in this line, we have summed up the consumption 3 European countries (Poland, Hungary and the UK).

Sourcing method

Unbundled energy attribute certificates (EACs) purchase

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Please select

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

130383

Country/area of origin (generation) of the low-carbon energy or energy attribute

Please select

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

For confidentiality reasons, the Group does not communicate site-level energy consumption data. In countries where the Group has only one factory, this means that communicating data at country level would come down to communicating site-level data. To be able to provide a response, in this line, we have summed up the consumption 3 European countries (Poland, Hungary and the UK).

Sourcing method

Unbundled energy attribute certificates (EACs) purchase

Energy carrier

Electricity

Low-carbon technology type

Wind

Country/area of low-carbon energy consumption

China

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

30844

Country/area of origin (generation) of the low-carbon energy or energy attribute

China

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

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Serbia

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

36149

Country/area of origin (generation) of the low-carbon energy or energy attribute

Serbia

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

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

Serbia

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

76816

Country/area of origin (generation) of the low-carbon energy or energy attribute

Serbia

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

Sourcing method

Other, please specify (Green electricity products (e.g. green tariffs) from an energy supplier, supported by energy attribute certificates)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Brazil

Tracking instrument used

Please select

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

355183

Country/area of origin (generation) of the low-carbon energy or energy attribute

Brazil

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

Comment

C8.2g

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

Country/area

Brazil

Consumption of electricity (MWh)

107272.01

Consumption of heat, steam, and cooling (MWh)

0

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

107272.01

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Canada

Consumption of electricity (MWh)

319566.94

Consumption of heat, steam, and cooling (MWh)

0

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

319566.94

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

China

Consumption of electricity (MWh)

266147.84

Consumption of heat, steam, and cooling (MWh)

0

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

266147.84

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Germany

Consumption of electricity (MWh)

7966.7

Consumption of heat, steam, and cooling (MWh)

0

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

7966.7

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Spain

Consumption of electricity (MWh)

50599.28

Consumption of heat, steam, and cooling (MWh)

0

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

50599.28

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

France

Consumption of electricity (MWh)

151754.21

Consumption of heat, steam, and cooling (MWh)

12563.33

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

164317.54

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Brazil

Consumption of electricity (MWh)

276.28

Consumption of heat, steam, and cooling (MWh)

0

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

276.28

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Hungary

Consumption of electricity (MWh)

4547.5

Consumption of heat, steam, and cooling (MWh)

0

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

4547.5

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Indonesia

Consumption of electricity (MWh)

59021.17

Consumption of heat, steam, and cooling (MWh)

0

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

59021.17

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

India

Consumption of electricity (MWh)

44569.97

Consumption of heat, steam, and cooling (MWh)

0

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

44569.97

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Italy

Consumption of electricity (MWh)

192271.94

Consumption of heat, steam, and cooling (MWh)

0

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

192271.94

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Japan

Consumption of electricity (MWh)

4074.17

Consumption of heat, steam, and cooling (MWh)

0

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

4074.17

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Mexico

Consumption of electricity (MWh)

72670.56

Consumption of heat, steam, and cooling (MWh)

0

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

72670.56

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Poland

Consumption of electricity (MWh)

59900

Consumption of heat, steam, and cooling (MWh)

0

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

59900

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Romania

Consumption of electricity (MWh)

23352.81

Consumption of heat, steam, and cooling (MWh)

0

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

23352.81

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Russian Federation

Consumption of electricity (MWh)

24846.39

Consumption of heat, steam, and cooling (MWh)

0

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

24846.39

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Serbia

Consumption of electricity (MWh)

2385

Consumption of heat, steam, and cooling (MWh)

0

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

2385

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

Thailand

Consumption of electricity (MWh)

414409.53

Consumption of heat, steam, and cooling (MWh)

0

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

414409.53

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

France

Consumption of electricity (MWh)

363.47

Consumption of heat, steam, and cooling (MWh)

0

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

363.47

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

Country/area

United States of America

Consumption of electricity (MWh)

1307775.03

Consumption of heat, steam, and cooling (MWh)

1819.44

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

1309594.47

Is this consumption excluded from your RE100 commitment?

<Not Applicable>

C9. Additional metrics

C9.1

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

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

2021-URD-Extract_Scopes1&2.pdf

2021 URD.pdf

Page/ section reference

2021 URD, pages 210-211, 239 and 256-259

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 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

2021-URD-Extract_Scopes1&2.pdf

2021 URD.pdf

Page/ section reference

2021 URD, pages 210-211, 239 and 256-259

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

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

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

Verification-Statement_Scope3_Michelin.pdf

Page/section reference

Entire document

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year emissions intensity figure	ISAE3000	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. 2021-URD-Extract_Scopes1&2.pdf
C5. Emissions performance	Other, please specify (CO2 emissions avoided)	ISAE3000	100% of the data have been verified by a third party providing limited assurance according to the ISAE3000 standard. 2021-URD-Extract_Scopes1&2.pdf
C8. Energy	Energy consumption	ISAE3000	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. 2021-URD-Extract_Scopes1&2.pdf

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

EU ETS
France carbon tax
Shanghai pilot ETS

C11.1b

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

EU ETS

% of Scope 1 emissions covered by the ETS

% of Scope 2 emissions covered by the ETS

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

Allowances purchased

Verified Scope 1 emissions in metric tons CO2e

1346122.73

Verified Scope 2 emissions in metric tons CO2e

1417620.723

Details of ownership

Facilities we own and operate

Comment

Shanghai pilot ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

8.9

Period start date

January 1 2021

Period end date

December 31 2021

Allowances allocated

77189

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

67324

Details of ownership

Other, please specify (Other, please specify (Heat purchased from an ETS supplier))

Comment

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

France carbon tax

Period start date

January 1 2021

Period end date

December 31 2021

% of total Scope 1 emissions covered by tax

15

Total cost of tax paid

643174

Comment

C11.1d

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

Strategy is 1/ To make sure there is a balance between allowances and emissions, including forward purchases of allowances, to smooth the cost impact on production facilities: 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.

2/ Deliver ambition to reduce specific energy consumption by 37 % between 2010 and 2030: 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 37 % between 2010 and 2030.

In order to implement energy-efficiency programs, each plant has an appointed energy specialist. To support the very ambitious 2030 roadmap, the Energy competency network will be expanded with the creation of an Energy Expert position for Europe and a separate two-year post dedicated to leading the Energy Efficiency Roadmap deployment program.

In 2020 the plants worked on their fixed energy use, to gain a better understanding of the sensitivity of the process to wide swings in output and to improve their ability to manage facility shutdown and restart procedures.

C11.2

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

Yes

C11.2a

(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

Project type

Forests

Project identification

Livelihoods (LCF1) with NGO Fundaeco: agroforestry in Guatemala

Verified to which standard

Other, please specify (VERRA)

Number of credits (metric tonnes CO2e)

29224

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

29224

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Not defined yet. Probably future voluntary offsetting.)

Credit origination or credit purchase

Credit origination

Project type

Forests

Project identification

Livelihoods (LCF1) with NGO News in India : mangrove restauration in India

Verified to which standard

Other, please specify (VERRA)

Number of credits (metric tonnes CO2e)

38370

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

38370

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Not defined yet. Probably future voluntary offsetting.)

Credit origination or credit purchase

Credit origination

Project type

Energy efficiency: households

Project identification

Livelihoods (LCF1) wiht NGO Hifadhi : cookstoves in Kenya

Verified to which standard

Gold Standard

Number of credits (metric tonnes CO2e)

26535

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

26535

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Not defined yet. Probably future voluntary offsetting.)

Credit origination or credit purchase

Credit origination

Project type

Energy efficiency: households

Project identification

Livelihoods (LCF2) with NGO Hifadhi : cookstoves in Kenya

Verified to which standard

Gold Standard

Number of credits (metric tonnes CO2e)

7030

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

7030

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Not defined yet. Probably future voluntary offsetting.)

Credit origination or credit purchase

Credit origination

Project type

Energy efficiency: households

Project identification

Livelihoods (LCF1) with NGO Tiipaalga : cookstoves in Burkina Faso

Verified to which standard

Gold Standard

Number of credits (metric tonnes CO2e)

10672

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

10672

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Not defined yet. Probably future 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)

100

Variance of price(s) used

Uniform pricing: a single price that is applied throughout the company independent of geography, business unit, or type of decision. Evolutionary pricing over time

Type of internal carbon price

Shadow price

Impact & implication

In its commitment to cost-effectively reducing its CO₂ emissions, Michelin supports the introduction of an international carbon pricing system as part of the Carbon Pricing Leadership Coalition. Since 2016, the Group has incorporated an internal carbon price into its method of calculating return on investment for projects requiring major capital expenditure, such as production capacity increases, boiler upgrades and logistics 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 integrated into a project consolidation application developed in 2016 as part of the new energy efficiency improvement program. In 2021, the carbon price was raised from €50 to €100 a tonne.

C12. Engagement

C12.1

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

Yes, our suppliers
Yes, our customers/clients
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

2.1

% total procurement spend (direct and indirect)

65

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

5

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). More than 65% of the overall purchasing spend is covered by Ecovadis assessments, and regarding natural rubber or other raw materials the spend coverage is over 95%. While the EcoVadis approach provided a basic understanding of suppliers' maturity in this area, the rationale for a 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 has been renewed in 2020, 2021 and 2022. In 2021, this questionnaire has been sent to suppliers amongst the purchase categories which have the highest impact on Michelin Scope 3 emissions (a total of 104 suppliers, of which 84 raw material suppliers and 20 other suppliers). 97 of them answered the questionnaire, of which 77 raw materials suppliers and 20 other suppliers. The responding suppliers represent 72% of the 2021 scope 3 category 1 emissions. In 2022 this questionnaire has been sent to 124 suppliers (of which 103 raw material suppliers) which represent approx 80% of the 2021 scope 3 cat 1 emissions.

Impact of engagement, including measures of success

Impact of engagement: End of 2021, 85% of the 965 scored suppliers had achieved a score of 45 or above of the overall rating, and about 81% 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. In 2022 the assessment program will cover over 1200 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 since 2018/2019, with appropriate KPIs. This is a lever to improve supplier practices vs environment issues. The careful attention paid to the assessments by both the Group's purchasing teams and its suppliers is helping to drive steady progress. By year-end 2021, for example, of the approximately 760 suppliers with an assessment track record, 65% had improved on their global score and 20% had maintained their score. The segmentation of our raw materials suppliers takes into account the Ecovadis performance of the suppliers. 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. Of all the raw material suppliers requested to respond to the CDP Climate Change Supply Chain questionnaire, 92% responded in 2021. 56% of these scored B- or higher, indicating that their emissions management systems were fairly mature. The central CSR team prepared a scorecard for each supplier for the buyers to engage the discussion with the suppliers about their disclosure as well as their GHG actions and targets. These discussions are key to engage suppliers on their journey to tackle climate change.

Comment

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Other, please specify (Climate change performance is featured in supplier segmentation scheme and a supplier awards scheme; as well as environment and climate change embedded, and suppliers engaged on CSR assessments, in our supplier code of conduct.)

% of suppliers by number

100

% total procurement spend (direct and indirect)

100

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

7

Rationale for the coverage of your engagement

The management /segmentation of our suppliers takes into account their Ecovadis performance and, where relevant the response to the CDP Climate change questionnaire. - CSR performance (including climate change) is taken into account in supplier awards scheme, in which any of our suppliers can be enlisted. Michelin Purchasing Principles are applicable to all suppliers, and included in Michelin contracts. These principles define more precisely what is a requirement and what is an expectation, to ease enforcement. Within the section named "Fundamental Principles", a subsection addresses specifically the Protection of the Environment. Suppliers are required to send upon request any information that may be required to determine the CSR impact of any product or service it provides to Michelin (eg CO2 emissions). This document also encourages all suppliers to reduce GHG emissions, including transportation phases. It also expresses that suppliers shall carry out the CSR assessments which may be requested. Michelin has also started running a specific program to foster innovation with suppliers. The program named IWS, Innovation with Suppliers, aims at capturing innovation ideas on the market (existing, improved or new material, services, technology proposed by or developed with current or potential suppliers), in order to implement them within Michelin and therefore contribute to the Group performance. It relates to any kind of purchase (direct and indirect spend). KPI relates to the number of ideas which have been captured and implemented, rather than spend.

Impact of engagement, including measures of success

Results of the CSR performance and CDP disclosure (where relevant) are taken into account in the supplier segmentation (which defines whether supplier is a strategic, partnership, business or basic transactional type supplier). - CSR performance (including climate change) is taken into account in supplier awards scheme. In 2021, nine suppliers have received an award. Suppliers award create an emulation amongst suppliers, engaging them our sustainability. - Commitments are embedded into contractual terms, which facilitates the onboarding of suppliers in CSR assessments and sharing key data for CO2 emissions and lifecycle analysis calculations. - In the most recent years we have found out that more and more innovations involve environment protection and reducing impacts on environment, of which climate change. The ISW program fosters exchanges with suppliers and stimulates innovation.

Comment

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

0.1

% total procurement spend (direct and indirect)

5

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

1

Rationale for the coverage of your engagement

The campaign is a common call to action with a competitor to advance sustainable solutions for end-of-life tires (ELTs), including the increased use of recovered carbon black in the production of new tires. (joint keynote presentation on "sustainable ecosystems" for ELTs during the Recovered Carbon Black Conference 2021, held Nov. 22-23 in Amsterdam)

Impact of engagement, including measures of success

The purpose is to enable and increase the use of carbon black recovered from recycled tires. Michelin and Bridgestone are working together to lead this transition by defining strict technical standards, harmonizing government regulations and policies, building a coalition of partners and promoting processes that can be upscaled in recycling ecosystems. Recovered carbon black is a more sustainable raw material production route than virgin carbon black.

Comment

C12.1b

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

Type of engagement & Details of engagement

Education/information sharing	Share information about your products and relevant certification schemes (i.e. Energy STAR)
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% of customers by number

75

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

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. The rationale for targeting these customers is that they represent the majority of the tire supply and they may encourage the final consumer to choose more sustainable products. The purpose of Michelin 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, Allopleneus, 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

Success of this engagement is measured by the number of customers reached, and by the reputation of Michelin with customers. It is estimated that through retail product labelling 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 on the impact of this engagement 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 2020, for the 6th 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 22nd worldwide. 2) In 2020, Michelin retains its title as the world's strongest tire brand with a Brand Strength Index (BSI) score of 86.20 out of 100 and a rating of AAA. Michelin is the only brand in the ranking to score an AAA rating. Michelin also defends its title as the world's most valuable tire brand with a brand value of US\$7.1 billion according to the latest Brand Finance Auto & Tyres 2020 report.

C12.1d

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

- BlackCycle, since 2020:

BlackCycle, a European project for recycling end-of-life tires into new tires. Launched in 2020, the BlackCycle project brings together 13 organizations in a European public-private partnership that aims to create, develop and optimize a full value chain, from ELT feedstock to secondary raw materials (SRMs), with no waste of resources in any part of the chain and a specific attention for the environmental impact. These SRMs will be used to develop new ranges of passenger car and truck tires, which will be sold commercially in European and global markets. Funded by the Horizon 2020 program, the consortium is based in five European countries (France, Spain, Germany, Greece and Switzerland) and includes seven industrial partners, five research & technological organizations (RTOs) and an innovation cluster. Coordinated by Michelin, its governance system comprises a steering committee, a cluster synergies board and a technical support committee.

- Joint project between Michelin and Bridgestone, 2021:

A joint call to action was started in November 2021 by Michelin and Bridgestone to enrich the recycling ecosystem for end-of-life tires and promote the circular economy within the rubber industry. The two global tire leaders hope to enable and increase the use of carbon black recovered from recycled tires. Michelin and Bridgestone are working together to lead this transition by defining strict technical standards, harmonizing government regulations and policies, building a coalition of partners and promoting processes that can be upscaled in recycling ecosystems.

C12.2

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

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

C12.2a

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

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

Compliance with laws and regulations is a Requirement per the Michelin Purchasing Principles. These are included in the Purchasing Terms and Conditions, and in the Michelin contracts with the suppliers.

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

100

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

100

Mechanisms for monitoring compliance with this climate-related requirement

Other, please specify (This requirement is mechanically met as the Michelin Purchasing Principles is included in the Contract templates.)

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

Other, please specify (If the Michelin Principles were not included, the supplier shall provide an equivalent set of Principles to be included in the contract.)

Climate-related requirement

Climate-related disclosure through a public platform

Description of this climate related requirement

Disclosure through CDP (non public answers are accepted)

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

27

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

25

Mechanisms for monitoring compliance with this climate-related requirement

Off-site third-party verification

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

Retain and engage

Climate-related requirement

Setting a science-based emissions reduction target

Description of this climate related requirement

We ask the suppliers that represent the most emissions to set SBT, as is part of the SBT target that has been approved by the SBTi. The approved target is the following : "Michelin commits that 70% of its suppliers by emissions covering purchased goods and services will have science-based targets by 2024." Purchased goods and services emissions are represented by the Scope 3 category 1 emissions, per GHG protocol.

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

27

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

10

Mechanisms for monitoring compliance with this climate-related requirement

Off-site third-party verification

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

Retain and engage

C12.3

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

Row 1

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

Yes, we engage indirectly through trade associations

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

Yes

Attach commitment or position statement(s)

<https://cebds.org/publicacoes/posicionamento-empresarios-pelo-clima/#.YsLf7HbMI2w>
CARTA_Empresarios-Clima_PT-3.pdf

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

Constant engagements with best in class environmental associations

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

<Not Applicable>

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

<Not Applicable>

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

Trade association

Other, please specify (ETRMA)

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

Consistent

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

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

As tyres play a role in CO2 emissions from vehicles, ETRMA contributes to a regulatory framework setting minimum performance regulations based on international standards, and informing users.

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

Describe the aim of your organization's funding

<Not Applicable>

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

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify (AFEP)

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

Consistent

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

We have already influenced them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

AFEP is a very large transectorial association that aims at ensuring the transition to carbon neutrality of the EU. Michelin is not involved in all files that the organisation deals with.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

Trade association

BusinessEurope

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

Consistent

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

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Business Europe is a very large transectorial association that aims at ensuring the transition to carbon neutrality of the EU. Michelin is not involved in all files that the organisation deals with.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

Trade association

European Roundtable of Industrialists (ERT)

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

Consistent

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

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

We contribute to ERT by promoting elements and best practices which provide concrete input for policy makers.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

Trade association

Federation of French Industry (MEDEF)

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

Consistent

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

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

MEDEF is a very large transectorial association that aims at ensuring the transition to carbon neutrality of France. Michelin is not involved in all files that the organisation deals with.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

Trade association

Other, please specify (Thai Automotive Tyre Manufacturers Association (TATMA))

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

Unknown

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

We are attempting to influence them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

We contribute to TATMA by promoting EPR model to manage ELT and by encouraging them to be proactive to interact with policy makers on this topic. We are attempting to influence them to establish a position on ELT management.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

Trade association

Other, please specify (Mexico: Tyre and Rubber Association)

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

Consistent

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

We are attempting to influence them to change their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Promote the circular economy via a communications strategy on retreading; Strategy to have a regulatory framework for the treatment of end of life tyres.

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

Describe the aim of your organization's funding

<Not Applicable>

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

No, we have not evaluated

C12.4

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

Publication

In mainstream reports

Status

Complete

Attach the document

2021 URD.pdf

Page/Section reference

Michelin Universal Registration Document 2021: Chapter 1: Group presentation, ambitions and strategy (p.1-49) Chapter 4.1: MICHELIN Sustainable Development and Mobility Governance (p.153-154) Chapter 4.1.4: Environmental Governance, CO2emissions reduction and energy transition strategy and KPIs (p.207-209) Inventory of CO2 emissions (Scopes 1,2&3) (p.210-211) TCFD recommendations, Climate change strategy, risks & opportunities (p.222-224) Environmental Targets, KPIs and actions (p.239-242)

Content elements

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

Comment

C15. Biodiversity

C15.1

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

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	The Group Executive Committee (GEC), Group Management Committee (GMC) and the Supervisory Board are the 3 board-level committees responsible for biodiversity issues. The GEC –the managing chairman, general manager and the executive VPs– focuses on strategic decisions, such as corporate transformations, business models, acquisitions, performance, brand strategy, and sustainable growth. Two members –executive VPs of manufacturing and R&D, respectively –have delegated responsibility to make decisions on biodiversity-related risks and opportunities regarding operations through the Environmental Governance (EG) body which represents all operational departments. The GMC is comprised of the GEC plus the heads of Strategy, Purchasing, Corporate Business Services, Finance, Legal Affairs, Quality, Audit, Internal Control and Risk Management, Supply Chain, Information Systems, and the China and North America Regions. The GMC manages transformation, competitiveness, integration of acquisitions and the internal control, quality and risk management processes. It consults with a panel of business units and regions to ensure that its decisions are widely embraced across the organization. It oversees biodiversity-related risk managed through the enterprise risk management system, progress against biodiversity targets, and external engagements. It is briefed 2 times per year by the Chief Sustainability Officer to ensure that all biodiversity related issues overseen by the EG body are reviewed at the highest level of the company. The GEC and GMC are therefore responsible for overseeing assessment and management of risks and opportunities related to climate change for Michelin and its subsidiaries. The role of the Supervisory Board is to exercise permanent oversight of the Group’s management and to assess its quality for the benefit of the shareholders. Its 4-member CSR Committee examines the Group’s strategy, objectives, policies and commitments regarding environmental issues, and makes recommendations in this regard; ensures the integrity, completeness and exemplary nature of the environmental strategy and initiatives; reviews strategic roadmaps and their implementation.	<Not Applicable>

C15.2

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

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Adoption of the mitigation hierarchy approach Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species Commitment to no conversion of High Conservation Value areas Commitment to secure Free, Prior and Informed Consent (FPIC) of Indigenous Peoples	SDG Other, please specify (act4nature International)

C15.3

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

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	Yes, we assess impacts on biodiversity in both our upstream and downstream value chain	<Not Applicable>

C15.4

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

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Livelihood, economic & other incentives

C15.5

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

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Pressure indicators

C15.6

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

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In mainstream financial reports	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators	Pages 232-236 20220411_Michelin_2021_URD_US.pdf
In voluntary sustainability report or other voluntary communications	Impacts on biodiversity Details on biodiversity indicators	All document 20220411_Michelin_2021_URD_US.pdf Michelin-Sustainable-Natural-Rubber-Policy_2021_EN.pdf Sustainable-Natural-Rubber-Roadmap-2020-2025_EN.pdf Sustainable-Natural-Rubber-Progress-Report-2015-2020_EN.pdf
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments	http://www.act4nature.com/wp-content/uploads/2021/05/MICHELIN-VF-03_05.pdf all MICHELIN-ACT4NATURE-2030_GB.pdf

C16. Signoff

C-FI

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

C16.1

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

	Job title	Corresponding job category
Row 1	Chief Manufacturing Officer, Member of the Group Executive Committee, Member of the Corporate Group Management Committee and lead chair of the Environment Governance body.	Director on board

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	23795000000

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

7706.51

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

54197.26

Unit for market value or quantity of goods/services supplied

Metric tons

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

8115.83

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

54197.26

Unit for market value or quantity of goods/services supplied

Metric tons

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

844772.17

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

Market value or quantity of goods/services supplied to the requesting member

54197.26

Unit for market value or quantity of goods/services supplied

Metric tons

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

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

3702.34

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

4077.54

Unit for market value or quantity of goods/services supplied

Metric tons

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

3857.06

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

4077.54

Unit for market value or quantity of goods/services supplied

Metric tons

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

436938.22

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

Market value or quantity of goods/services supplied to the requesting member

4077.54

Unit for market value or quantity of goods/services supplied

Metric tons

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

Jaguar Land Rover Automotive plc

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

1026.04

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

1622.12

Unit for market value or quantity of goods/services supplied

Metric tons

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 Automotive plc

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

1068.92

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

1622.12

Unit for market value or quantity of goods/services supplied

Metric tons

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 Automotive plc

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

121090.05

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

Market value or quantity of goods/services supplied to the requesting member

1622.12

Unit for market value or quantity of goods/services supplied

Metric tons

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

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

15651.22

Uncertainty (±%)

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

31107.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

16305.32

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

31107.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

1847108.48

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

Market value or quantity of goods/services supplied to the requesting member

31107.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

Requesting member

BMW AG

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

3849.33

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on the volume of products purchased

Market value or quantity of goods/services supplied to the requesting member

9139

Unit for market value or quantity of goods/services supplied

Metric tons

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

4010.21

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

9139

Unit for market value or quantity of goods/services supplied

Metric tons

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

BMW AG

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

454286.5

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

Market value or quantity of goods/services supplied to the requesting member

9139

Unit for market value or quantity of goods/services supplied

Metric tons

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

Requesting member

Stellantis N.V.

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

14709.94

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

54904.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

Stellantis N.V.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

15324.7

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

54904.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

Stellantis N.V.

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

1736021.65

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

Market value or quantity of goods/services supplied to the requesting member

54904.29

Unit for market value or quantity of goods/services supplied

Metric tons

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

Requesting member

Honda Motor Co., Ltd.

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

5774.12

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

26605.93

Unit for market value or quantity of goods/services supplied

Metric tons

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 Motor Co., Ltd.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

6015.43

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

26605.93

Unit for market value or quantity of goods/services supplied

Metric tons

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 Motor Co., Ltd.

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

681443.67

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

Market value or quantity of goods/services supplied to the requesting member

26605.93

Unit for market value or quantity of goods/services supplied

Metric tons

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

21135.32

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

31940.13

Unit for market value or quantity of goods/services supplied

Metric tons

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

Toyota Motor Corporation

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

22018.62

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

31940.13

Unit for market value or quantity of goods/services supplied

Metric tons

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

2494325.69

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

Market value or quantity of goods/services supplied to the requesting member

31940.13

Unit for market value or quantity of goods/services supplied

Metric tons

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

Requesting member

Mercedes-Benz Group AG

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

6212.26

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

12582.1

Unit for market value or quantity of goods/services supplied

Metric tons

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

Mercedes-Benz Group AG

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

6471.88

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

12582.1

Unit for market value or quantity of goods/services supplied

Metric tons

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

Mercedes-Benz Group AG

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

733151.51

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

Market value or quantity of goods/services supplied to the requesting member

12582.1

Unit for market value or quantity of goods/services supplied

Metric tons

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

Requesting member

Vale SA

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

5414.93

Uncertainty (±%)

2

Major sources of emissions

Energy consumption by onsite boilers

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

8700

Unit for market value or quantity of goods/services supplied

Metric tons

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

Vale SA

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

5641.23

Uncertainty (±%)

2

Major sources of emissions

Net purchased electricity and steam

Verified

Yes

Allocation method

Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member

8700

Unit for market value or quantity of goods/services supplied

Metric tons

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

Vale SA

Scope of emissions

Scope 3

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

639053.21

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

Market value or quantity of goods/services supplied to the requesting member

8700

Unit for market value or quantity of goods/services supplied

Metric tons

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

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 "2021 Universal Registration Document", page 210, available on the corporate internet site (<http://www.michelin.com>). Scope 3 emissions for each relevant category for the year 2020 have been publicly reported to the CDP in 2021 (annual 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?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	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 continue to refine our methodology for calculating Scope 3 use phase emissions by general product category, namely passenger car tires and truck tires.
Other, please specify (Scope 3 emissions: use phase)	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.

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 categories: First, "Purchased Goods and Services", for which 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. Second, upstream and downstream transportation and distribution, for which we are working on three levels : logistics optimisation, increasing multi-modal transports, and lastly testing low-carbon transports, eg., hydrogen.

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

Reduce Logistics Emissions

Type of project

Changing transportation mode (switch from air to rail)

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

In the context of sustainability workshops BMW and Michelin are evaluating CO2 reduction in tire transportation by collaborating on transportation modes and anticipation of deliveries.

Requesting member

BMW 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

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

Michelin is implementing more and more high load tire (HL) applications that permit to improve the vehicles consumption via a compact and energy efficient car design especially for EV and Hybrid cars. Furthermore both companies work on HL sport tires with an A label in RR to further reduce energy consumption. Michelin develops tires for BMW that offer homogenous tire performances over all the life time. Long lasting wear life of our low rolling resistance tires improves the sustainable footprint via less consumed tires and the associated wear rate (g/km) improves the tire emissions in terms of Tire and Road Wear Particles significantly. Michelin proposes to pursue efforts with BMW to develop tires with lower rolling resistance whilst maintaining longevity as well as other key performances to satisfy the end customer and optimize the use of materials for the next generation of vehicles.

Requesting member

BMW AG

Group type of project

New product or service

Type of project

New product or service that has a lower upstream emissions footprint

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

Michelin also commits that 70% of its suppliers by emissions covering purchased goods and services will have science-based targets by 2024 (SBTi). Michelin is collaborating with BMW to lower the upstream emissions footprint by the use of renewable vegetal sources as Biobutterfly (see 3/) and increasing amount of of recyclable material, especially steel.

Requesting member

BMW AG

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

Michelin implemented projects to reach carbon neutrality Scopes 1 and 2 by 2050 with -50% in 2030 from a 2010 base year. Already in today BMW and Michelin agreed to allocated 100% renewable electric energy to tire production of BMW tires in all Michelin plants BMW is receiving tires from produced as of 2024. Furthermore, the partners are currently exploring possibilities to use CO2 free steam.

Requesting member

BMW AG

Group type of project

Change to provision of goods and services

Type of project

Other, please specify (supply chain transparency of natural rubber and CO2 emission reduction)

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

BMW and Michelin are assessing to collaborate on the supply chain transparency of natural rubber as well as on remediation projects. BMW needs to evaluate if Rubberway could be a solution from their point of view.

Requesting member

BMW AG

Group type of project

Other, please specify (Jointly promoting sustainable mobility)

Type of project

Other, please specify (automotive conferences, such as at Movin'On)

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin offers to continue working together with BMW to promote the importance of sustainability at industry and automotive conferences, such as at Movin'On.

Requesting member

Ford Motor Company

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

Please select

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings

5800000

Estimated payback

1-3 years

Details of proposal

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 whilst 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

Nissan Motor Co., Ltd.

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin works with Nissan on advanced engineering projects to improve vehicle fuel efficiency and reduce CO2 emissions (projects identified as "Good fuel economy"). 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.

Requesting member

General Motors Company

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings

8990000

Estimated payback

1-3 years

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 roadmaps 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

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

1-3 years

Details of proposal

Supporting GM efforts on sustainability, recyclability, 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 (Revise manufacturing footprint for reduced logistics requirements)

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings**Estimated payback**

1-3 years

Details of proposal

Working 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 Automotive plc

Group type of project

New product or service

Type of project

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

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin is continuously working with Jaguar Landrover on improving rolling resistance on new vehicles (especially to meet WLTP regulations), whilst keeping balanced performances between longevity, traction, wear and other key performances to ensure customer satisfaction.

Requesting member

Stellantis N.V.

Group type of project

Relationship sustainability assessment

Type of project

Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

Please select

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Collaboration to assess cradle to gate vehicle LCA on different types of vehicles.

Requesting member

Stellantis N.V.

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings**Estimated payback**

1-3 years

Details of proposal

Long term collaboration on RR, Michelin has been working with ex-PSA on multiple low RR generations of tires, last innovation project(YBRR) is on going and focusing on further RR and aero improvement to prepare for CAFE2025 milestone.

Requesting member

Honda Motor Co., Ltd.

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**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 low rolling resistance with robust tire into the emergency market with slime line & LRRC design concept with co-dev for new EV in 2023, whilst maintaining Michelin Total Performance (=keeping balanced performances between longevity, traction, wear and other key performances) to ensure customer satisfaction. The second is to start exchanging about future techno for ultra low RRC & light tire through HONDA new scheme agreement.

Requesting member

Honda Motor Co., Ltd.

Group type of project

Change to supplier operations

Type of project

Implementation of energy reduction projects

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin implemented projects to reach carbon neutrality Scopes 1 and 2 by 2050 with -50% in 2030 from a 2010 base year.

Requesting member

Honda Motor Co., Ltd.

Group type of project

Change to supplier operations

Type of project

Implementation of energy reduction projects

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin implemented projects to reach carbon neutrality Scopes 1 and 2 by 2050 with -50% in 2030 from a 2010 base year. Michelin shared the CO2 company emission data with TMNA for the North American sites.

Requesting member

Honda Motor Co., Ltd.

Group type of project

Reduce Logistics Emissions

Type of project

Other, please specify (optimize sourcing decisions)

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Prioritization of sourcing from Thailand to avoid CO2 emissions linked to logistics (currently 75% tires for TOY sourced from Thailand -> 86% in the next 5 years).

Requesting member

Toyota Motor Corporation

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin works with Toyota on reducing CO2 emissions, especially by developing tires combining low rolling resistance in "real world" situation with Dry / Wet mu performance.

Requesting member

Daimler Truck 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

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

Estimated timeframe for carbon reductions to be realized

Please select

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 overall 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. Michelin also proposes to work with Mercedes on reducing vehicle weight by eliminating the spare wheel and developing a low rolling resistance standard & extended tires. Michelin strongly supports Mercedes's approach to generalize Label A tires to improve overall fleet consumption.

Requesting member

Daimler Truck AG

Group type of project

New product or service

Type of project

New product or service that has a lower upstream emissions footprint

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

Please select

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

Both companies have agreed to work to increase the use of secondary material which will be formally documented during the tire homologation process.

Requesting member

Daimler Truck AG

Group type of project

Change to supplier operations

Type of project

Increased levels of purchased renewable energy

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

Please select

Estimated lifetime CO2e savings

Estimated payback

3-5 years

Details of proposal

Michelin implemented projects to reach carbon neutrality Scopes 1 and 2 by 2050 with -50% in 2030 from a 2010 base year. Michelin also commits that 70% of its suppliers by emissions covering purchased goods and services will have science-based targets by 2024 (SBTi). Furthermore in the context of Mercedes "Ambition 2039" Michelin ensures that the products we provide to the Mercedes-Benz AG are CO2 neutral (own value chain and supply chain) by 2039 at the latest. All products that are delivered from 01/01/2039 at the latest are produced in a CO2-neutral manner in all stages of the value chain. This includes the production at your locations as well as the upstream supply chain (HQ-Level). Roadmaps to CO2 neutrality have been shared.

Requesting member

Renault Group

Group type of project

New product or service

Type of project

New product or service that reduces customers operational emissions

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin works with the Alliance on advanced engineering projects to improve vehicle fuel efficiency and reduce CO2 emissions (projects identified as "Good fuel economy"). 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.

Requesting member

Renault Group

Group type of project

Relationship sustainability assessment

Type of project

Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

Other, please specify (> 5 years)

Estimated lifetime CO2e savings**Estimated payback**

Other, please specify (> 5 years)

Details of proposal

Collaboration on a "Ultragreen" demonstrator that dratically optimizes CO2 cradle to grave LCA.

Requesting member

Ferrari

Group type of project

Change to provision of goods and services

Type of project

More online / virtual provision of services

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings**Estimated payback**

0-1 year

Details of proposal

Systematic integration of virtual development loops in all tire developments (part of a contractual partnership) -avoiding materials waste & CO2 consuming trips.

Requesting member

Ferrari

Group type of project

New product or service

Type of project

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

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings**Estimated payback**

1-3 years

Details of proposal

Michelin is striving to provide to Ferrari the best technology to improve vehicle fuel efficiency and reduce CO2 emissions, while also maintaining the ultimate balance of performance needed for such sport cars: max grip, dry and wet handling and NVH. For doing so, Michelin optimizes the three major tire parameters contributing to fuel consumption: rolling resistance, mass and aerodynamics.

Requesting member

Volvo Car Group

Group type of project

New product or service

Type of project

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

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin implemented projects to reach carbon neutrality Scopes 1 and 2 by 2050 with -50% in 2030 from a 2010 base year. Michelin shared the CO2 company emission data with Volvo Cars as well as a dedicated Environmental Assessment for Michelin's relevant sites. The partners agreed to annually review the progress and current state. Michelin takes action to develop a roadmap on how to reach 100 % renewable energy for Volvo's tires by 2025 and a reduction plan towards net zero emissions including short term actions to slow down the exponential curve of climate change.

Requesting member

Volvo Car Group

Group type of project

New product or service

Type of project

New product or service that has a lower upstream emissions footprint

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Michelin committed to cascade its sustainability targets to Michelin suppliers and commits that 70% of its suppliers by emissions covering purchased goods and services will have science-based targets by 2024 (SBTi). Life-Cycle Analysis (LCA) on tires delivered to Volvo Cars will be performed according to ISO 14040 to assess the ecological performance as well as progress levers. In this context Volvo and Michelin are in working on a sustainable tire reducing the global CO2 emissions via a long wear tires being replaced less often and reducing CO2 because of lower consumption by lowering rolling resistance.

Requesting member

Volvo Car Group

Group type of project

Relationship sustainability assessment

Type of project

Assessing products or services life cycle footprint to identify efficiencies

Emissions targeted

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

Estimated timeframe for carbon reductions to be realized

3-5 years

Estimated lifetime CO2e savings**Estimated payback**

3-5 years

Details of proposal

Volvo and Michelin are working on a sustainable tire project judging the tire's ecological performance based on a life cycle assessment. The global CO2 emissions should be reduced via a long wear tires project that reduce CO2 in tire (vehicle) production being replaced less often and that reduces CO2 because of lower consumption by reducing rolling resistance.

Requesting member

CNH Industrial 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

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings**Estimated payback**

Please select

Details of proposal

1/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 CNH to develop tires with lower rolling resistance while maintaining customer satisfaction regarding mileage, TCO and safety. On the short term Michelin propose action plan to optimised CNH current portfolio and specific sales force joined action to engage fleet specification toward lower RR tyre. On the long term Michelin shared product plan ambition to better support CNH with CO2 challenges. 2/Michelin propose to continue to support innovation on next vehicle generation including connected tyre system technologie, digital services and "Tire as a service" solutions. 3/ In addition Michelin is supporting CNH strategie with BEV and FCEV with offering strong support on Nikola program in US and Eur. Michelin is committed to best tyre solution that support strong acceptance of advanced electric solution in the market (Range, TCO, standardisation...). Michelin is also contributing to workshops with Iveco about Light Trucks Electrification to draw the futur specifications of 17.5" products.

Requesting member

CNH Industrial NV

Group type of project

Please select

Type of project

Please select

Emissions targeted

Please select

Estimated timeframe for carbon reductions to be realized

Please select

Estimated lifetime CO2e savings**Estimated payback**

Please select

Details of proposal

1/ 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 CNH to develop tires with lower rolling resistance while maintaining customer satisfaction regarding mileage, TCO and safety. As an example after the launch of Xcoach Z in 2019 with optimized RR, the Launch of Incity EV product (2021) with better Rolling Resistance and higher load Capacity will leverage Electrification and Passengers capacity.

Requesting member

Daimler Truck 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

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

Estimated timeframe for carbon reductions to be realized

1-3 years

Estimated lifetime CO2e savings**Estimated payback**

Please select

Details of proposal

1/Michelin has been continually reducing rolling resistance and believes itself to be the most advanced tire manufacturer based on total performance. In 2020 for example better rolling resistance offers have been enriched, for exemple with the 315/70R22.5 X Line Energy Z2 and 315/80R22.5 X Multi Energy Z & D in 2021 We can shared as an example the launches of the new generations of X One tyres in North Americain (X Line Grip D, X line Energy T2 2/Michelin want to support Daimler global operation across the planet. This is the reason why we introduce the ultimate Fuel efficient ranges in emerging markets such as Brazil, India (X Multi Energy) or China (X Line Energy 2) from 2021 to extend the footprint of this solution more environment friendly. 3/Michelin proposes to pursue partnership with Daimler to develop tires with lower rolling resistance while maintaining customer satisfaction regarding mileage, TCO and safety like in the US where R&D teams share vehicle and Tire roadmap. Concrete proposal have been made in Europe and Japan this year. 4/Michelin propose to continue support innovation on next zero emission vehicle generation électrique and autonomous including connected tyre system technologie: discussion or partnership are on going in Europe, US and Japan.

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

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.

Name of good/ service

Passenger car tires

Description of good/ service

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.

Type of product

Final

SKU (Stock Keeping Unit)

Single 11.56-kg tire

Total emissions in kg CO2e per unit

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

Please select

Name of good/ service

Truck tires

Description of good/ service

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.

Type of product

Final

SKU (Stock Keeping Unit)

Single 62-kg tire

Total emissions in kg CO2e per unit

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

Please select

SC4.2b

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

Name of good/ service

Please select the scope

Please select

Please select the lifecycle stage

Please select

Emissions at the lifecycle stage in kg CO2e per unit

Is this stage under your ownership or control?

Please select

Type of data used

Please select

Data quality

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

SC4.2c

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

Name of good/ service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit
Passenger car tires	Initiative 1	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.	Please select	15.5
Truck tires	Initiative 2	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.	Please select	95
Passenger car, truck, two-wheel, aviation, earth-movers and agricultural engines: Reducing the carbon emissions of our manufacturing plants.	Initiative 3	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.	Please select	10

SC4.2d

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

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

The European Climate Pact Submission

Please indicate your consent for CDP to showcase your disclosed environmental actions on the European Climate Pact website as pledges to the Pact.

No, we do not wish to pledge under the European Climate Pact at this stage

Please confirm below

I have read and accept the applicable Terms