Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

Ford Motor Company is a global automotive company based in Dearborn, Michigan with 55 plants and about 190,000 employees worldwide. Our core business includes designing, manufacturing, marketing, financing and servicing Ford cars, trucks, sport utility vehicles ("SUVs") and electrified vehicles, as well as Lincoln luxury vehicles. The company provides financial services through Ford Motor Credit Company, LLC ("Ford Credit") which is wholly owned and fully consolidated. At the same time, Ford is pursuing leadership positions in electrification, autonomous vehicles and mobility solutions. Our mobility segment primarily includes development costs related to our autonomous vehicles and our investment in mobility through Ford Smart Mobility, LLC.

Contributing to a better world is a core value at Ford, and our commitment to sustainability is a key part of who we are as a company. Our vision is to create a more dynamic and vibrant company that improves people's lives around the world while creating value for all stakeholders. We are working to reduce the CO2 emissions from our facilities and our vehicles, in line with the climate targets outlined in the Paris Climate Agreement. The risks and opportunities associated with the changing climate are shaping the way we do business, from offering electrified versions of our popular models by investing more than $11.5 billion by 2022, to a global carbon reduction strategy focused on powering our facilities with renewable energy. In 2017, we achieved our CO2 manufacturing emissions reduction goal eight years ahead of schedule, reducing our global CO2 emissions from manufacturing operations by 30% per vehicle produced. Through our work in advancing our planet we are contributing to the following UN SDGs – Clean Water and Sanitation, Affordable and Clean Energy, Industry, Innovation and Infrastructure, Responsible Consumption and Production, and Climate Action.

Our environmental Aspirational Goals include achieving carbon neutrality globally by 2050, supporting 100% renewable energy for all manufacturing plants globally by 2035, achieving true zero waste to landfill across our operations, eliminating single-use plastics from our operations by 2030, aspiring to use only recycled and renewable plastics in our vehicles globally, making zero water withdrawals for manufacturing processes, and aspiring to use freshwater for human consumption only.

For us, mobility is about human progress and making people's lives better in mature economies and major cities as well as helping solve problems in areas of the world that tend to be under-served by technology advances. We are reimagining what mobility will look like and foresee clean, smart vehicles communicating with each other, as well as the road infrastructure

and public transit systems, orchestrated by open cloud-based platforms like our Transportation Mobility Cloud. It is our belief that the freedom of movement drives human progress. Shaped by this belief, we aspire to become the world's most trusted company, designing smart vehicles for a smart world. We also promote safer behavior through a range of driver assist and semi-autonomous technologies. We are committed to reducing the environmental footprint with our key suppliers and are working with them to reduce our combined environmental footprint through our Partnership for A Cleaner Environment (PACE) program.

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
Reporting year	January 1, 2019	December 31, 2019	No

C0.3

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

Argentina
Brazil
Canada
China
France
Germany
India
Mexico
Romania
Russian Federation
South Africa
Spain
Thailand
Turkey
United Kingdom of Great Britain and Northern Ireland
United States of America
Venezuela (Bolivarian Republic of)
Viet Nam

C0.4

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

USD

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.

Operational control

C-TO0.7/C-TS0.7

(C-TO0.7/C-TS0.7) For which transport modes will you be providing data?

Light Duty Vehicles (LDV)

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 Sustainability and Innovation Board of Directors Committee is comprised of 8 Directors (including Bill Ford, our Executive Chairman) and reports to the board on all climate related issues. The functions of the Committee include: • advising on the development of strategies, policies, and practices that assist the Company in addressing public sentiment and shaping policy in the areas of climate change, energy, emissions, waste disposal, and water use; • maintaining and improving sustainability strategies to create value consistent with the long-term preservation and enhancement of shareholder value and social well-being, including human rights, working conditions, and responsible sourcing; and • reviewing trends in global mobility areas such as mobility infrastructure, vehicle ownership and business models, vehicle connectivity, and automation in order to help provide accessible, personal mobility throughout the world. One climate-related decision example is our board's support of management's decision to pursue a voluntary framework with the California Air Resources Board for stronger vehicle greenhouse gas emissions standards, which essentially would create a 50-state solution to regulate GHG emissions.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies	The Sustainability and Innovation Board of Directors Committee meets at least four times each year to evaluate and advise on the Company's pursuit of innovative practices and technologies. Their responsibilities include: (1) Discuss and advise management regarding the development of strategies, policies, and practices that assist the Company in addressing public sentiment and shaping policy in the areas of energy consumption, climate change, greenhouse gas and other criteria pollutant emissions, waste disposal, and water use. (2) Discuss and advise management on maintaining and improving sustainability strategies that create value consistent with the long-term preservation and enhancement of shareholder value and social well-being, including human rights, working conditions, and responsible sourcing. (3) Review trends in global mobility areas such as mobility infrastructure, vehicle ownership and business models, vehicle connectivity, and automation in order to help provide accessible, personal mobility throughout the world. The Committee is responsible to annually review the Sustainability Report Summary and Company initiatives related to innovation. The Committee reports regularly to the Board (i) following meetings of the Committee, (ii) with respect to such other matters as are relevant to the Committee's discharge of its responsibilities and (iii) with respect to such recommendations as the Committee may deem appropriate. The report to the Board may take the form of an oral report by the Chair or any other member of the Committee designated by the Committee to make such report. The Committee shall perform a review and evaluation, at least annually, of the performance of the Committee and its members, including a review of adherence of the Committee to its Charter. In addition,

		the Committee shall review and reassess, at least annually, the adequacy of its Charter and recommend to the Nominating and Governance Committee any improvements to its Charter that the Committee considers necessary or appropriate. The Committee shall conduct such evaluation and reviews in such manner as it deems appropriate. The committee reviews items such as Environmental, Social and Governance (ESG), Carbon Dioxide (CO2 glidepath) and sustainability, as governance mechanisms for oversight of climate related issues. Our governance connection to other frameworks includes our TCFD, SASB, GRI, UN Guiding Principles Reporting Framework and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action.

C1.2

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

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

C1.2a

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

Ford's Chief Sustainability Officer is our Vice President of Sustainability, Environment and Safety Engineering (SE&SE). The SE&SE VP reports to the Executive Vice President and President, Global Operations who reports to the President and CEO.
As the CSO, the SE&SE VP assists the Chair of the Board of Directors Sustainability and Innovation Committee in coordinating topics for review by the Committee and is responsible for delivering the Sustainability Strategies including those in response to climate change and are governed by our Enterprise Risk Management (ERM) process.

Topics are requested by the Board or recommended through various corporate forums as mentioned below. The SE&SE VP also oversees the Sustainability, Homologation & Compliance (SH&C) group, the Environmental Quality Office (EQO), and the Automotive Safety Office (ASO). These Departments oversee establishing strategies for and the delivery of Vehicle Safety, Stationary and Mobile Source Emissions and Compliance attributes for the company. In particular, SH&C and EQO coordinate the development and yearly review of Climate Change Strategy including a Global Technology Migration Path for CO2 Reduction (Glidepath) in alignment with the Paris Climate Agreement to guide both product and facility actions to do our part for Climate Change initiatives. Our strategy is shaped by external factors, including government policies, physical risks such as extreme weather and other effects of climate change, market trends, and investor concern over climate change.

The ERM process is the model for how we run the company. It contains the management processes that we follow to continually improve our performance and deliver our plan. It enables us to continually monitor the ever-changing global business environment for risks and opportunities – including those related to sustainability – and use this analysis to inform and adjust our strategies as needed. It also creates stronger accountability for setting, tracking and reporting progress against our goals, objectives, revenue targets, and other financial indicators and stakeholder satisfaction. This process includes that Business Units and Skill Teams will implement the same ERM sustainability-related risk assessments, planning, strategy implementation and performance reviews consistently around the world. We monitor progress against objectives throughout the year, using the processes set out below. These allow us to respond to new internal and external developments in a timely manner and use these evaluations to inform adjustments to our management approaches where necessary.

We monitor climate related issues through the following reviews:
· Monthly Business Review (MBR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds MBR meetings to review our management of sustainability and other business issues. Ford's sustainability scorecard is reviewed alongside our business units' scorecards at these meetings
· Monthly Business Review of Special Topics (MBR-ST): The MBR-ST process brings the senior leadership team together to review significant matters in more detail, and to develop action plans and strategies to address more specific risks and opportunities.
· Additional governance forums: The Strategic Programming Meeting, Product Matters Meeting Forum, Strategic Matters Meeting Forum, and People Meeting Forum, enable us to review key elements of our business, make long-term decisions and develop strategic inputs to the Board of Directors The SE&SE VP and the Chief Product Development and Purchasing Officer jointly lead the Global Sustainability Meeting (GSM), a multidisciplinary senior-level team to oversee actions in response to climate change and sustainable mobility strategies. The meeting is scheduled to meet monthly to provide strategic direction for compliance, govern vehicle environmental compliance policies and strategies, evaluate and report sustainability business

environment and impact to Ford, approve and govern each skill teams' Sustainability Integration 5-year plan, long-term goals & metrics, and provide guidance and governance for key Sustainability trends that enable "Leadership."

Our connection to other frameworks includes our TCFD, SASB, GRI, UNGC, UN Guiding Principles Reporting Framework and UN SDG Goal 12-Responsible Consumption and Production.

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	The compensation Committee of the Board of Directors approved the specific performance goals and business criteria to be used for purposes of determining the cash awards for 2019 participants, including executive officers, under the Company's shareholder-approved Annual Incentive Compensation Plan. The Corporate performance criteria and weightings used for 2019 under the plan supported the Company's business plan and strategy, which incorporates our commitment to reduce CO2.

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 inventivized	Comment
Corporate executive team	Monetary reward	Efficiency target	Many corporate officers listed at media.ford.com have various environmental objectives, including increasing energy efficiency and reduction of CO2 emissions, included in their annual performance review objectives. Performance against these personal objectives influences overall performance ratings which determines the individual payouts under our incentive plans.
Facilities manager	Monetary reward	Efficiency target	Ford's plant managers have targets for many metrics, including environmental metrics such as water use, waste sent to landfill, energy use, CO2 emissions, etc. These

			targets are included in the calculation of performance incentives.
Business unit manager	Monetary reward	Efficiency target	Ford's division and operations managers oversee several individual plants and, as such, have targets for many metrics, including environmental metrics such as water use, waste sent to landfill, energy use, CO2 emissions, etc. These targets are included in the calculation of performance incentives.
All employees	Monetary reward	Efficiency target	The Corporate performance criteria and weightings used for 2019 support the Company's business plan and strategy, which includes our commitment to reduce CO2.
Environment/Sustainability manager	Non-monetary reward	Efficiency target	Ford's Environmental Quality Office presents annual Environmental Leadership Awards in each different region of the globe. Projects are judged by subject matter experts within the Company on environmental benefit, cost effectiveness, replicability, and several other criteria. Awards are presented at regional workshops and also re-presented in ceremonies at the winning facilities.

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	2	Short-term horizons, what Ford calls "Now" are those situations or issues that need to be addressed immediately. Examples include unexpected events such as changes in resource availability, changes in exchange rates or tariffs, and facility shut-downs (such as a recent

			fire at a supplier plant that stopped production of the F-150 pick-up truck).
Medium-term	2	5	Medium-term horizons, what Ford calls “Near" allow for a complete product cycle plan rotation where consumer preferences and regulatory requirements are known and time is available to consider alternatives for orderly implementation.
Long-term	5	30	Long term horizons, or what Ford calls “Far" encompass long term strategic issues that require time to develop efficient and cost effective solutions through research, technology development, and business strategy restructuring.

C2.1b

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

The Enterprise Risk Management (ERM) process is the model for how we run the company. Fully integrated into how we run the business, it enables us to monitor the changing global business environment for risks and opportunities – including those related to sustainability – and use this analysis to inform and adjust our strategies as needed. It also creates accountability for setting, tracking and reporting progress against our goals, objectives, revenue targets, and sustainability targets. This process ensures we implement sustainability-related risk assessments, planning, strategy implementation and performance reviews consistently across the organization.

In addition to sustainability governance, the ERM process includes our financial planning process that establishes a 5-year plan that is reviewed twice a year. The plan includes a down turn analysis (similar to the size of the 2008/2009 recession) as well as planning for events with potential substantive financial impact. Ford Motor Company defines substantive financial impact on our business if the resulting deviation from planned earnings exceeds $250 million when identifying or assessing climate related risks. Such a reduction in revenue could be caused by a stop in production/sale of vehicles from labor issues, severe weather events, result from a regulation that would prohibit the sale of our products.

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

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

We monitor climate related issues through the following reviews:
· Monthly Business Review (MBR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds MBR meetings to review our management of sustainability and other business issues. Ford's sustainability scorecard is reviewed alongside our business units' scorecards at these meetings
· Monthly Business Review of Special Topics (MBR-ST): The MBR-ST process brings the senior leadership team together to review significant matters in more detail, and to develop action plans and strategies to address more specific risks and opportunities.
· Additional governance forums: The Strategic Programming Meeting, Product Matters Meeting Forum, Strategic Matters Meeting Forum, and People Meeting Forum, enable us to review key elements of our business, make long-term decisions and develop strategic inputs to the Board of Directors The SE&SE VP and the Chief Product Development and Purchasing Officer jointly lead the Global Sustainability Meeting (GSM), a multidisciplinary senior-level team to oversee actions in response to climate change and sustainable mobility strategies. The meeting is scheduled to meet monthly to provide strategic direction for compliance, govern vehicle environmental compliance policies and strategies, evaluate and report sustainability business environment and impact to Ford, approve and govern each skill teams' Sustainability Integration 5-year plan, long-term goals & metrics, and provide guidance and governance for key Sustainability trends that enable "Leadership."
An example of a climate related risk to direct operations is a catastrophic weather event such as a hurricane, tornado, tsunami, or fire. Such an event can result in the inability to produce/manufacture parts or vehicles. An example is the recent fire at an F-150 Truck supplier caused an 8-day production shut-down resulting in a $579M EBIT reduction. This item was flagged for assessment in our special attention in our SAR (now MBR) and a recovery plan was formulated through our management process and implemented to restore production as quickly as possible by manufacturing parts at alternative facilities. We consider this production shutdown to have a substantive financial impact.

Value chain stage(s) covered

Upstream

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

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· Monthly Business Review (MBR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds MBR meetings to review our management of sustainability and other business issues. Ford's sustainability scorecard is reviewed alongside our business units' scorecards at these meetings
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An example of an upstream climate related risk are catastrophic weather events such as a hurricane, tornado, tsunami, or fire. These events can result in the inability to produce/manufacture parts or vehicles. An example is the recent fire at an F-150 Truck supplier caused an 8-day production shut-down resulting in a $579M EBIT reduction. This item was flagged for assessment in our special attention in our SAR (now MBR) and a recovery plan was formulated through our management process and implemented to restore production as quickly as possible by manufacturing parts at alternative facilities. We consider this production shutdown to have a substantive financial impact.

Value chain stage(s) covered

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

We monitor climate related issues through the following reviews:
· Monthly Business Review (MBR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds MBR meetings to review our management of sustainability and other business issues. Ford's sustainability scorecard is reviewed alongside our business units' scorecards at these meetings
· Monthly Business Review of Special Topics (MBR-ST): The MBR-ST process brings the senior leadership team together to review significant matters in more detail, and to develop action plans and strategies to address more specific risks and opportunities.
· Additional governance forums: The Strategic Programming Meeting, Product Matters Meeting Forum, Strategic Matters Meeting Forum, and People Meeting Forum, enable us to review key elements of our business, make long-term decisions and develop strategic inputs to the Board of Directors The SE&SE VP and the Chief Product Development and Purchasing Officer jointly lead the Global Sustainability Meeting (GSM), a multidisciplinary senior-level team to oversee actions in response to climate change and sustainable mobility strategies. The meeting is scheduled to meet monthly to provide strategic direction for compliance, govern vehicle environmental compliance policies and strategies, evaluate and report sustainability business environment and impact to Ford, approve and govern each skill teams' Sustainability Integration 5-year plan, long-term goals & metrics, and provide guidance and governance for key Sustainability trends that enable "Leadership."
An example of a downstream climate related risk is falling electric vehicle sales which are short of their target. This would be flagged to be assessed as an issue to address at a business planning review (BPR). A corrective action plan would be reviewed at a monthly business review meeting which our management process could conclude that a $5000 incentive is required to sell every BEV, PHEV and HEV sold in the US to meet regulatory obligations. If approved this action would reduce revenue by $290M based on 2019 sales which would be considered a substantive financial impact. The sales issue would be brought into the GSM for strategic review of our approach to electric vehicles and to develop corrective actions for our future plans.

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	Climate related current regulation risk is relevant because it is directly related to meeting product emission targets or sales volumes for environmentally friendly vehicles. We must comply with global greenhouse gas, fuel economy, and zero emission vehicle regulations which require significant ongoing improvements to our vehicles. We are subject to fines if we don't meet the regulatory standards. To enable continued regulatory compliance, Ford has committed more than $11.5 billion in electrified vehicle investment through 2022. Example #1 of current regulatory risk: California's Zero Emission Vehicle (ZEV) mandate requires that Ford sells a number of ZEVs (to earn credits) in California. If this number is not met, a civil penalty based on the difference between the number of ZEVs the manufacturer should have sold and the number actually sold can be imposed on Ford. The penalty amount is $5000 x (credit shortfall for a model year). Therefore, if Ford fell 100 credits short of the mandate in a certain MY, we could face a fine of $500,000. Ford managed this ZEV mandate sales risk for the Ford Focus BEV and Fusion and C-MAX Energi vehicles. The Focus BEV sales were not meeting the expected targets so Ford made up the difference with discounting its Energi products. Ford also minimizes the civil penalty risk by maintaining a credit bank which can be used to cover any unforeseen shortfalls. Example #2 of current regulatory risk: The European GHG Emission Trading Scheme (EU ETS) is implemented in 31 countries and applies to large emitting facilities. It focuses on emissions that can be measured, reported and verified. Our plants in Dagenham, Bridgend, Dunton, Valenica, Cologne Vehicle Operations and Saarlouis powerplant are affected. We established and maintain a very accurate emission measurement and a robust reporting procedure to ensure we have enough allowances to cover our emissions and avoid costly purchases of additional allowances on the ETS market.
Emerging regulation	Relevant, always included	In major markets where Ford conducts business (N. America, China, Europe, Brazil, etc.), governments have vehicle fuel economy and/or greenhouse gas standards for both vehicles and facilities and continue to set increasingly stringent standards. Therefore, it is always relevant to our business to evaluate proposed regulations to ensure our products and facilities will be compliant and achieve the necessary CO2 reductions. Additionally, the EU and some US state governments,

		led by California, have set aggressive near and long-term goals to limit temperature rise, which impact greenhouse gas and fuel economy standards for vehicles. Example #1: Last year we identified the emerging regulatory risk that California and other states could enforce unique greenhouse gas requirements if a new One National Program for fuel economy and GHG standards could not be achieved. Having to plan to comply with two different sets of standards in different geographic areas would increase Ford's costs and planning complexity. When it became clear that a continuation of One National Program was no longer viable, Ford decided to address this risk proactively by pursuing a voluntary framework with California for stronger vehicle greenhouse gas emissions targets based on nationwide vehicle sales. This enables Ford to engage in product planning with greater regulatory certainty. Example #2: California's proposed Advanced Clean Truck Initiative seeks to electrify the medium / heavy duty truck fleet. California is a large market for Ford's medium and heavy-duty vehicles. Requirements to electrify this fleet require additional investments in electrification programs. Depending on how these requirements are phased in they could result in multiple investments in new vehicle programs each requiring investments of tens to hundreds of millions of dollars depending on the degree of change required (all new mass market light duty programs can cost a billion dollars or more but the medium / heavy duty programs are typically smaller). In cases such as these Ford seeks requirements be phased-in so that environmental goals are reached in an investment efficient way that aligns with product change cadences. The Sustainability Environment and Safety Engineering team's Business Planning Review process offers a forum for communicating emerging regulatory risk throughout the company so Ford can ensure new and emerging requirements are considered in product planning and manufacturing facilities.
Technology	Relevant, always included	Technology is always included and relevant because hardware and software solutions need to be available in a timeframe that allow us to meet our CO2 reduction goals in a cost-effective manner. As we make further CO2 reductions, it becomes increasingly more challenging and costly to continue making incremental improvements because the technology that is simplest to implement has already been utilized. Additionally, technology may not be available to make the improvements at the rate required to meet regulatory or internal requirements. Technology risk example 1: As we invest over $11.5B in electrification technology to provide customers with HEVs, PHEVs, and BEVs, battery technology becomes critical. We must consider the cost and

		risks of batteries. We are subject to the capacity of the battery production sector, which may not be advancing as quickly as demand from Ford and other OEMs. Battery technology risks include not only the production infrastructure but the underlying global supply of raw materials such as lithium and cobalt. Any battery technology gap brings with it the risk that we might have to limit EV sales, unable to meet market demand because the supply isn't in place.. Technology risk 2: We are studying technology solutions that allow PHEVs to operate as ZEVs in Urban Low Emission Zones (LEZ), where vehicle access is restricted to limit urban emissions. We have a test fleet using geofencing to automatically switch PHEVs to ZEV operation in LEZs and blockchain accounting to verify CO2 emissions. The risk of developing this technology to aid customer mobility is that the technology may not be accepted by LEZ authorities resulting in wasted research investment. Technology risk example 3: Ford's reputation could be negatively affected is if we launched CO2 reducing technologies that were not well received by our customers affecting sales of the vehicles with those technologies, as happened with the Ford Focus BEV. The product was launched in 2011 with a range of 76 miles and sales of this vehicle were not as high as planned. Focus BEV sales as well as customer satisfactions metrics were reviewed and flagged as a concern at business planning reviews - BPRs. A subsequent product freshening action took place to improve range and subsequent BEVs from Ford implemented learnings from Focus and will have longer range. In this example, the financial targets for the Focus BEV were not met.
Legal	Relevant, always included	Our primary legal risks are tied to potential non-compliance with current and future regulations. Non-compliance can result in enforcement actions seeking to impose civil penalties and other remedies. These potential consequences are always considered. Mitigation of enforcement risk can involve a number of potential strategies, including efforts to reduce regulatory complexity, effective communications with regulators, and implementation of more robust planning processes. The voluntary California Framework Agreement represents an example of mitigating legal risk by reducing regulatory complexity. Last year, as it became clear that One National Program for fuel economy and GHG standards was about to dissolve, we focused on the emerging risk of having to comply with two different sets of fleet average GHG standards. California and the states adopting California's GHG standards would have one program, and other states would follow the Federal program. Having to meet different sets of GHG standards in different geographic areas would increase Ford's planning and

		distribution complexity, giving rise to increased compliance risk. Ford decided to address this risk proactively by pursuing a voluntary framework with California based on a nationwide fleet average structure. Ford is the only U.S. full-line automaker to work with California on this voluntary framework. Timely and effective communications with regulators can also help to mitigate the risk of enforcement actions. Whether we are engaged in certifying electrified vehicles, commenting on proposed GHG rules, or attempting to manage our business operations and maintain compliance with legal requirements in the face of obstacles, we strive keep regulatory agencies well-informed of our operational status and our views on pending matters. Constructive communications can help identify solutions to emerging problems and can help shape the development of future regulatory standards that are both effective and realistic.
Market	Relevant, always included	Ford always considers it relevant to consider changing market conditions that may impact our company's goals. To meet vehicle GHG regulations and our internal CO2 reduction targets aligning with the Paris Climate Agreement, technological improvements are needed. For example, we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022. However, although we have invested heavily, our CO2 goals are at risk due to market conditions. There is a risk of continued low market acceptance of fuel-efficient technologies. In the U.S., the battery electric vehicle market has remained around 1%, partially due to low gasoline prices. Although Ford has invested heavily in this market, it is unclear whether consumers will widely accept these technologies without significant incentives. Meeting our climate goals relies on wide market acceptance of electrified vehicles. To take advantage of emerging trends, Ford has established Ford Smart Mobility LLC to ensure our company is focused on providing improved mobility solutions rather than focusing solely on increasing vehicle sales. Ford is responding to these changing customer needs by purchasing Spin, a dockless electric scooter sharing service. Spin has active operations in 16 markets including Baltimore, Denver, Detroit, Los Angeles, Portland, San Francisco, Tampa, Washington, DC., Alexandria, VA, Charlotte, NC, Columbus, OH, Orlando, FL, Louisville, KY, Nashville, TN, Salt Lake City, UT and St. Louis, MO. Additionally, we have an Urban Electrified Vehicle – UEV Transit PHEV (blockchain supported) fleet trial in London, Valencia and Cologne where we are working together to optimize fleet LCVs for the future to help Cities in air quality issues.

		Our Ford-specific glide paths (CO2 reduction goals aligning with the Paris Climate Agreement) are calculated for our major operating regions. This enables the regions to design a product plan specific to their market's needs. The Business Planning Review Process offers a forum for reviewing analyses of the effects of any possible global market changes on our CO2 glidepath climate goals. This is so Ford can ensure market changes are considered in product planning
Reputation	Relevant, sometimes included	Climate related reputation risk is relevant as it is often tied to other risks such as meeting product emission targets or sales volumes for environmentally friendly vehicles. Example 1: Our reputation can suffer if we do not reduce vehicle CO2 in line with expected progress for climate stabilization. Our vehicle fleet CO2 intensity and trends are reported publicly by regulatory agencies including the U.S. EPA/NHTSA and the European Environment Agency (EEA). Customers, investors, NGOs and others see this regulatory data as well as our absolute emissions reported to CDP. By looking at the trend in our CO2 performance and comparing it against that of other OEMs, our customers and investors judge how well we are progressing on our announced climate goals and aspirations. If the data show a poor performance year, our reputation suffers and customers may choose to take their business elsewhere. For example, the 2018 EPA Automotive Trends Report (released March 2019) showed Ford improved both car and truck tailpipe CO2 emissions between 2012-2017. But the data also showed we had a higher CO2 intensity than many of the major OEMs. Although our higher CO2 and lower ranking is influenced by our customers buying larger vehicles from us than from other OEMs, our reputation can suffer. Example 2: Climate concerns are part of the impetus for ICE-bans and ZEV mandates in U.S. states and the European Union. Ford must offer a range of ZEV models to meet customers' needs and sell enough ZEVs to meet sales requirements. If Ford's models do not sell as well as expected, sales may not meet the mandated levels, restricting our ability to sell other vehicle types in ZEV states. This could be perceived negatively and our , reputation could suffer putting our income at risk. Vehicle and fleet CO2 emissions and ZEV sales are assessed and managed through our Sustainability Environment and Safety Engineering (SE&SE) team's Business Planning Review. When an item of concern is identified through these metrics, it is flagged for special attention and proceeds to a SAR (Special Attention Review). At the SAR the risk root cause would be assessed and preventative/corrective actions is evaluated, selected, and implemented.

Acute physical	Relevant, sometimes included	We sometimes consider acute physical risks as relevant in our CO2 assessments. Evaluating this type of risk is dependent on the topic. For example, we are active in the Health Effects Institute (HEI) to remain aware of possible human health risks. For facilities that may be in zones with a higher risk of storms or floods such as our manufacturing sites in Thailand or the Philippines, actions are taken to ensure continued availability of fuel to minimize production disruptions. Example of acute physical risk: Purchasing operations engages in an organization wide Supply Risk Management process that focuses on strategic and tactical planning to minimize disruption for the Ford vehicle and component assembly plants due to supply chain events. In 2015, we used these tools to understand the potential business disruption exposure of typhoons hitting the Philippines. Disruption to the supply chain can result in significant production losses at our vehicle assembly plants, as well as incremental costs to expedite shipping of components to our plants. We assess the risks each of our facilities faces based on continuously updated data and considers the risk of exposure to hurricanes, tornadoes, other storms, flooding and earthquakes. These potential disruptions to production include climate change-induced weather events or other natural or man-made disasters. Our supply risk strategy has evolved with the launch of a predictive tool developed internally by our Supply Risk and Data Analytics teams. This system, named Supply Risk Intelligence (SRi), allows us to monitor a host of predictive data inputs on a real time basis to mitigate potential supply disruptions. We continue to launch new versions of the SRi tool as predictive modelling techniques become more accurate based on machine learning and other progressive techniques. Ford has made over $1.5 million in research and capital investments to implement the supply chain monitoring program. Purchasing Supply Risk along with the Ford Material Planning and Logistics teams continue to develop new risk identification and mitigation tools, such as Geo-Fencing.

Chronic physical	Relevant, sometimes included	We sometimes consider chronic physical risks as relevant in our CO2 assessments. Evaluating this type of risk is dependent on the topic. Example of chronic physical risk: We are active in the Health Effects Institute (HEI) to remain aware of possible human health risks resulting from vehicle emissions such as criteria pollutants or GHG. We have also identified that approximately 25 percent of our operations, including the Cuautitlán, Mexico facility, are at risk to be water-scarce based on the Global Water Tool, developed by the World Business Council for Sustainable Development (WBCSD). Water availability is a local issue, therefore, we conducted our analysis using detailed watershed-level data. According to our analysis, about 25 percent of our operations are located in regions that are now or will be considered to be at risk for water scarcity by 2025. To address this issue, Ford implemented a water reduction strategy to reduce water utilization at all manufacturing facilities with special attention to reduce utilization of potable water sources. Ford also engages suppliers to take similar actions at their facilities.

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

Current regulation

Mandates on and regulation of existing products and services

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

In our global markets (e.g. North America, EU, China, Brazil, etc.), Ford is required to comply with fuel economy and/or GHG standards. If these governments implement more stringent fuel economy or GHG standards in periods of unfavorable market conditions or inadequate technology development, we likely would have to take actions that could have adverse effects on our sales volume and profits. Such actions could include restricting engines and options; increasing market support programs for our most fuel-efficient vehicles including the Fusion/MKZ/Mondeo PHEV and hybrid, F-150, Figo, and Fiesta; and curtailing the production and sale of certain vehicles in order to maintain compliance. In the U.S., we are carefully monitoring the expansion of the California ZEV mandates to the 11 other states that follow California's lead in regulating GHG emissions." This is very challenging since free market demand in those states has historically not reached the share required by the ZEV mandates. To sell BEVs in those regions may require Ford market support if government policy does not incentivize customer demand.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

66,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial implications would vary depending on the specific details of a given scenario, including the stringency of the standard relative to market conditions, and the degree of flexibility in the regulatory framework. For illustration purposes, a regulatory program that drove a 1% decrease in sales within North America could lead to an estimated decrease in earnings of over $66 million, based on 2019 regional sales and profit. It should be noted that financial impacts are not necessarily "linear" in nature. The adverse financial impacts of large initiatives that drive product restrictions and/or production shutdowns could be exponentially greater than the impacts of less drastic initiatives.

Cost of response to risk

7,400,000,000

Description of response and explanation of cost calculation

We manage the risk by being an active participant in the legislative and regulatory processes used to set standards by providing information on the effects of proposed regulations on our business while supporting the goal of decreasing CO2 emissions with our scientific approach. Last year we identified the emerging regulatory risk that California and other states could have unique greenhouse gas requirements if a new One National Program for fuel economy and GHG standards could not be achieved. Having to plan to comply with two different sets of standards in different geographic areas would increase Ford's costs and planning complexity. When it became clear that a continuation of One National Program was no longer viable, Ford decided to address this risk proactively by pursuing the Framework Agreement with California, the basic terms of which were announced in July 2019. The Framework offers a pathway that allows Ford to better manage costs and complexity while at the same time enabling greater CO2 reductions. We also manage risk through offering a wide range of fuel-efficient vehicles and powertrains to meet customers' needs (e.g., advanced EcoBoost engines, HEV, PHEV, BEV and in some regions advanced diesel) to allow for increased flexibility and customer choice. We have also invested in light weighting through use of aluminium in our F-150 and Super Duty, and more recently in our Lincoln Navigator and Ford Expedition. The cost of managing this risk is calculated from the sum of Ford's Engineering, Research and Development expenses of $7.4 billion in 2019 and Ford's over $11.5 billion investment in the development of electrified vehicle solutions by 2022.

Comment

There are limits on our ability to achieve fuel economy improvements over a given timeframe primarily relating to the cost and effectiveness of available technologies, consumer acceptance of new technologies, the appropriateness of certain technologies for use in particular vehicles, the availability of supporting infrastructure for new technologies, and the resources necessary to deploy new technologies across a wide range of products and powertrains in a short time.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Global climate change has the potential to lead to increased extreme precipitation events that produce flooding which can disrupt production either directly or through interruptions to the supply chain. Ford has both direct operations plants and suppliers' facilities in areas at the risk of flooding. In 2011, flooding in Thailand led to 34,000 units of lost production

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, a single figure estimate

Potential financial impact figure (currency)

170,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

An example of a possible financial impact due to an acute weather event could be lost production due to either a Ford facility or a supplier facility production being disrupted. Based on data from our experience with flooding in Thailand in 2011, over $5,000 was lost for each unit of reduced production (34,000 units) resulting in a loss of revenue for the company (potential $170 million).

Cost of response to risk

1,500,000

Description of response and explanation of cost calculation

Purchasing operations engages in an organization wide Supply Risk Management process that focuses on strategic and tactical planning to minimize disruption for the Ford vehicle and component assembly plants due to supply chain events. These potential disruptions to production include climate change-induced weather events or other natural or man-made disasters. Our supply risk strategy has evolved with the launch of a predictive tool developed internally by our Supply Risk and Data Analytics teams. This system, named Supply Risk Intelligence (SRi), allows us to monitor a host of predictive data inputs on a real time basis to mitigate potential supply disruptions. We continue to launch new versions of the SRi tool as predictive modeling techniques become more accurate based on machine learning and other progressive techniques. Ford has made over $1.5 million in research and capital investments to implement the

supply chain monitoring program. Purchasing Supply Risk along with the Ford Material Planning and Logistics teams continue to develop new risk identification and mitigation tools, such as Geo-Fencing.

In 2015, we used these tools to understand the potential business disruption exposure of typhoons hitting the Philippines. We assess the risks each of our facilities faces based on continuously updated data and takes into account the risk of exposure to hurricanes, tornadoes, other storms, flooding and earthquakes.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Other, please specify

Drought

Company-specific description

Global climate change has the potential to exacerbate droughts. We cannot be certain that we will always have access to water of the quantity and quality that our operations require. We have identified that approximately 25 percent of our operations, including the Cuautitlán, Mexico facility, are at risk to be water-scarce based on the Global Water Tool, developed by the World Business Council for Sustainable Development (WBCSD). Water availability is a local issue, therefore we conducted our analysis using detailed watershed-level data. According to our analysis, about 25 percent of our operations are located in regions that are now or will be considered to be at risk for water scarcity by 2025.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

109,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our facilities in Mexico are located in water-scarce regions. Our manufacturing facility in Cuautitlán, Mexico, for example, is already subject to water-withdrawal limitations. The Cuautitlán plant produced over 44,000 vehicles in 2019, or 1.6% of North American production. If Cuautitlán production was stopped due to the unavailability of water, 1.6% of 2019 North American earnings before taxes is $109 million, assuming production of those products could not be moved to another facility.

Cost of response to risk

1,600,000

Description of response and explanation of cost calculation

Our water strategy aligns with the core elements of the CEO Water Mandate. Companies that support the CEO Water Mandate commit to implementing the framework's six core elements for water management and pledge to publicly report their progress annually. Ford endorsed the Water Mandate in 2014. We developed our water strategy to prioritize addressing our water use, supplier water use and community water issues in water-stressed regions identified using the Global Water Tool, developed by the World Business Council for Sustainable Development (WBCSD). We are investing in water-saving technologies and process improvements across our global operations. Wherever feasible, we take successful projects and mirror them in other locations. Our newest plants use a set of advanced and environmentally friendly technologies to dramatically cut water use such as implementing membrane biological reactors (MBR) and reverse-osmosis processes to recycle water from our on-site wastewater treatment plants in arid regions, such as at plants in Chihuahua and Hermosillo, Mexico; Pretoria, South Africa; Chennai, India; and Chongqing, China. At our Ford CSAP in Mexico, we have invested over $1.6 million dollars over the past five years in water saving/reuse projects like WWTP recycling system, utilizing a gray water source and separation of drinking water from industrial recycled water to name a few. These projects resulted in a 50% reduction in withdrawal of fresh drinking water.

Comment

Many of these new systems require substantial capital investments, so we have been adding them on a rolling basis as we update equipment and bring new facilities online, especially in areas where water is more scarce.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market

Changing customer behavior

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

Climate change has increased consumer interest not only for "green" vehicles but also for alternative transportation solutions. In many cities, consumers are dealing with inconvenient, congested transportation systems that create pollution, reduce fuel economy and waste travelers' time. With more people living in congested urban areas, consumers desire more and different forms of mobility. As a provider of personal transportation vehicles and mobility solutions, Ford must be prepared to respond to these changing customer needs in large metropolitan areas. In early actions, Ford purchased Spin, a dockless electric scooter sharing service in 2018 which operates in 16 markets including Baltimore, Denver, Detroit, Los Angeles, Portland, San Francisco, Tampa, Washington DC., Alexandria VA, Charlotte NC, Columbus OH, Orlando FL, Louisville KY, Nashville TN, Salt Lake City UT and St. Louis MO. In Europe, Ford launched the FordPass bikesharing project in Cologne in 2018 and now has 3,700 bikes currently in operation.

Time horizon

Long-term

Likelihood

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)

66,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our ability to satisfy changing consumer preferences with respect to type or size of vehicle, as well as design and performance characteristics, affects our sales and earnings significantly. Financial risk due to changing consumer behavior is possible as the demand for our traditional vehicles could decrease as consumers seek alternatives to personal vehicle transportation. Financial implications would vary depending on the specific details of a given scenario, including the type and extent of changes in the marketplace and personal transportation. For illustration purposes, changing consumer behavior that drove a 1% decrease in North American sales could lead to an estimated decrease in net income of nearly $66 million, based on 2019 earnings and sales rates. It should be noted that financial impacts are not necessarily “linear” in nature. The adverse financial impacts of large changes in consumer behavior could be exponentially greater than the impacts of less drastic changes.

Cost of response to risk

7,400,000,000

Description of response and explanation of cost calculation

We created a new subsidiary to respond to changing customer behavior called Ford Smart Mobility LLC, to develop commercially ready mobility services and invest in promising mobility-related ventures. Our Smart Mobility plan's focus areas are two key areas of mobility – flexible use and ownership, and multimodal urban travel solutions. Ford has responded to changing customer needs in large metropolitan areas by purchasing Spin, a dockless electric scooter sharing service in 2018 which operates in 16 markets including Baltimore, Denver, Detroit, Los Angeles, Portland, San Francisco, Tampa, Washington, DC., Alexandria, VA, Charlotte, NC, Columbus, OH, Orlando, FL, Louisville, KY, Nashville, TN, Salt Lake City, UT and St. Louis, MO. We also launched the FordPass bikesharing project in Cologne with 3,700 bikes currently in operation. We are also investing in autonomous vehicle research. The cost of management includes Ford's Engineering, Research and Development expenses which were $7.4 billion in 2019. Ford announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022. In 2018, we also announced plans to invest to invest $4 billion through 2023 in Ford Autonomous Vehicles LLC.

Comment

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market

Changing customer behavior

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

Fuel prices are volatile. Consumers are sensitive to fuel price and tend to buy vehicles with higher fuel economy when gasoline is expensive, but historically have chosen vehicles with lower fuel economy when fuel prices have been low. From 2006 to 2010 gasoline prices increased significantly, and sales of our higher fuel economy vehicles increased. But from mid-2014 through 2016, there was a significant decline in gasoline prices, resulting in decreased sales of our vehicles with higher fuel economy and alternative powertrains. Fuel prices in the US remain low in 2019. Ford is a global manufacturer, but we are based out of the U.S., which is our largest vehicle market. In the U.S., consumer preference has been shifting toward larger vehicles such as crossover utility vehicles (CUVs), SUVs, and trucks (e.g. Escape, Explorer, F150), all of which are strengths in Ford's portfolio. Other regions are also showing a consumer preference for CUVs and SUVs. However, increased sales of these vehicles may result in higher CO2 emissions. To pursue our internal carbon reduction goals and meet increasingly stringent regulatory requirements as customer demand changes, Ford continues to improve the fuel efficiency and CO2 of our conventional vehicles. For example, our 2019 Edge in the U.S. emits 3-7% less CO2/mile (www.fueleconomy.gov) than the previous model year with the same engine. Ford has also increased use of low emission vehicle technologies, such as electrified powertrains. In other countries and regions, such as China and Europe, there are additional challenges because consumer needs are different in these markets. To meet other markets' needs, Ford sometimes will tailor our vehicles, which are typically designed for the U.S. market to those markets.

Time horizon

Medium-term

Likelihood

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)

29,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

When fuel prices are low, customers tend to choose less fuel-efficient vehicles. This fluctuation may not follow long-term cycle planning for compliance with CO2 regulations. Negative financial implications result if we have to provide price support to encourage the purchase of advanced-technology vehicles to meet regulations. For example, in 2019, Ford customers registered over 58,800 HEVs and PHEVs in the United States. If we had to supply $500 price incentives to customers to encourage the purchase of these fuel-efficient electrified vehicles that would amount to an expense of $29 million.

Cost of response to risk

7,400,000,000

Description of response and explanation of cost calculation

We manage the risk of fuel price volatility through offering our customers a wide range of fuel-efficient conventional vehicles and powertrains including EcoBoost turbocharged direct-injection gasoline engines, as well as hybrid vehicles, plug-in hybrid electric vehicles and battery electric vehicles. We will add new electrified vehicle solutions to our portfolio by 2022. We have increased EcoBoost offerings to include more than 80 percent of our global nameplates. We have also invested in light weighting through use of aluminium in our F-150 and Super Duty, and more recently the Lincoln Navigator and Ford Expedition. This global approach puts us in a better position to be able to respond to changes in market demand due to fuel price volatility. We will increase the number and variety of fuel-efficient options in the near future. We're dedicated globally to doing our part to meet our commitment to the Paris Climate Agreement. The cost of management includes Ford's Engineering, Research and Development expenses of $7.4 billion in 2019. Ford also announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022.

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

Returns on investment in low-emission technology

Company-specific description

CO2-related taxation in Europe drives the market to low CO2 vehicles and incentivizes the up-take of new fuel-efficient vehicles in two waves: the first for vehicles less than 50g CO2/km by 2025, and the second for zero emission vehicles by 2030. Our global portfolio includes a range of fuel-efficient technologies including EcoBoost and we announced over $11.5 billion investment in global EV products including the introduction of many BEV, PHEV, and HEV by 2022. For example, in 2019 we announced our new Kuga PHEV rated at 29 gCO2/km, meeting the low tax incentive. The Kuga line up also includes mild-hybrid and full-hybrid powertrains. We also announced we will sell the Mustang Mach-E BEV in Europe. Ford is well-positioned to meet the need of such a shift in Europe and should perform well relative to other manufacturers, providing opportunities for growth and increased market share.

Time horizon

Medium-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

140,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Investments in vehicle technology can potentially be recouped if there is sufficient customer demand for the advanced-technology vehicles. Financial implications would vary depending on the specific details of a given scenario, including the extent of market demand for advanced-technology vehicles and the profitability of the vehicles responsible for an increase in sales. For illustration purposes, an increase in sales within Europe of 0.5% could lead to an estimated increase in revenue by about $140

million, based on 2019 EU sales and revenue. It should be noted that financial impacts are not necessarily “linear” in nature. The financial impacts of increased sales of advanced technology vehicles could be different than those of conventional vehicles and could be positive (if purchase price offset the cost and investment of the technology) or negative (if it did not).

Cost to realize opportunity

7,400,000,000

Strategy to realize opportunity and explanation of cost calculation

Ford has institutionalized the Enterprise Risk Management (ERM) Process, which includes a Sustainability Environment & Safety Engineering- (SE&SE) Business Plan Review and Special Attention Review process where the SE&SE senior leadership reviews the status of the business, the risks and opportunities presented to the business, and develops plans to address those risks and opportunities. If consumer demand shifts toward different products, such as vehicles with higher fuel economy and advanced technology powertrains in response to tax incentives, we increase their output. Our current and announced product offerings include a variety of low-CO2 vehicles: small diesel and gasoline vehicles, EcoBoost engines, and hybrid, plug-in hybrid, and battery electric vehicles; we will add additional electrified vehicle (EV) solutions in our portfolio by 2022, giving us flexibility to meet changing consumer demand. There are currently 15 different CO2 taxation schemes in EU member states, requiring us to manage our products on a country-by-country basis and limiting financial opportunity in the near term. The cost of management includes Ford's Engineering, Research and Development expenses of $7.4 billion in 2019. Ford also announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022. The cost of management can be reduced through economies of scale if the European tax break-points are harmonized across regions.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Move to more efficient buildings

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Ford has a global Carbon Reduction Strategy with a goal to reduce our absolute tCO2e emissions by 16% from our manufacturing locations by 2023. One element of that strategy is the continued focus on energy efficiency projects to reduce the overall electricity footprint of Ford Motor Company. LED lighting is one example of facility efficiency improvements. We translate our global environmental targets into annual regional- and facility-level targets, which differ depending on the relevant regulations and financial and production constraints in each region.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

326,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Achieving the corporate goal of improving global facility energy use per vehicle produced by 25 percent between 2011 and 2016 also reduced our costs for the energy. Since 2013, Ford facilities in Europe have reduced total scope 1 + scope 2 CO2 emissions by 22%, which is approximately 190,000 tCO2e. Many Ford manufacturing lighting systems have been replaced by LED lighting fixtures providing a significant energy cost savings per site of $326,000 per year.

Cost to realize opportunity

1,300,000

Strategy to realize opportunity and explanation of cost calculation

We translate our global environmental targets into annual regional- and facility-level targets, which differ depending on the relevant regulations and financial and production constraints in each region. LED lighting is one example of facility efficiency improvements. The initial $1.3M invested at manufacturing sites to install LED fixtures annually reduces the overall electricity used and saves energy cost. Another example is the Energy Management Operating System (EMOS). Since 2015, we have globally rolled out EMOS, enabling our teams to manage demand and remotely control plant

energy and heating systems for greater energy efficiency. The roll out installs smart measurement equipment to analyze energy consumption, identifies the main energy consumption facilities and machinery, and then renews or refits these main consumption entities to reduce the energy consumption. The roll-out of best practices identified at one specific site to all relevant sites is an ongoing process.
For example, EMOS data acquisition and monitoring equipment is generally used during shutdown periods, to monitor, evaluate, and compare electrical and compressed air usage with the required energy use according to the “cannot shutdown list.” Additional EMOS Team shutdown focus have led to energy awareness from the measured data. A compressed air leakage management system was identified and is currently implemented in Cologne, to continuously address this costly issue.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

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

Ford is investing in electrification to address consumers becoming more aware of climate change and increasingly "think green". Our projected vehicle fleet mix is expected to shift toward vehicles with higher fuel economy and electrified powertrains. As a customer- and product-driven company, our vehicles are the foundation of our business. Our products are also a major focal point of our environmental impacts and our efforts to reduce those impacts. The Company's product plans are well positioned to meet different regional demands for this shift in consumer demand to electrified vehicles. We continue to offer regional solutions with a number of higher fuel economy and advanced technology powertrains, including HEVs (Fusion Hybrid, Mondeo Hybrid, Police Responder Hybrid Sedan, and Lincoln MKZ Hybrid) and PHEVs (Fusion Energi, Mondeo Energi, Police Special Service Plug-in Hybrid Sedan). We have also started investing in microtransit options including bike sharing and scooter sharing. We launched FordPass Bikes in Cologne and Dusseldorf, Germany in 2018. Spin, a dockless scooter sharing service is now operating in 16 markets including Baltimore, Denver, Detroit, Los Angeles, Portland, San Francisco, Tampa, Washington, DC.,

Alexandria, VA, Charlotte, NC, Columbus, OH, Orlando, FL, Louisville, KY, Nashville, TN, Salt Lake City, UT and St. Louis, MO.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

0

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial impact is neutral because of offsetting effects. Our strategy gives us flexibility, within limits, to shift production to respond to this opportunity of demand for fuel-efficient powertrains, and away from powertrains that are relatively less in demand. In this way we try to be well-positioned to maintain our sales volumes and market share in any market. However, vehicle revenue could decrease as a result of product choice shifting to fuel efficient models, thereby limiting financial opportunities. Investments in microtransit open up new areas but are minor compared to our core business.

Cost to realize opportunity

7,400,000,000

Strategy to realize opportunity and explanation of cost calculation

Ford has institutionalized the Enterprise Risk Management (ERM) Process, which includes an SE&SE monthly Business Plan Review and Special Attention Review process where the senior leadership from each of the Business Units and the Functional Skill Teams reviews the status of the business, opportunities, and develops plans to address opportunities. The Sustainability and Innovation Board of Directors Committee evaluates and advises on the Company's pursuit of innovative practices and technologies that improve sustainability and innovation strategies and practices used to develop and commercialize technologies. We are exploring the integration of mobility solutions, connectivity, autonomy, and data analytics developing more ways to transform the consumer experience. As a result, we created Ford Smart Mobility LLC, to develop commercially ready mobility services and invest in promising mobility-related ventures. The strategy is to maintain strength in core business that generates profits,

helping to kick-off new mobility business until it is self-sustaining and profitable. There are costs associated with maintaining such flexibility. The cost of management includes Ford's Engineering, Research and Development expenses of $7.4 billion in 2019. Ford also announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022.

Comment

Identifier

Opp4

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

Not all consumers will move to electrified vehicles in the near term, and customer demand varies by region. Innovative and fuel efficient internal combustion engines and vehicles help the reputation of Ford Motor Company. Technology such as the EcoBoost engine and mild hybrid (48V) positions Ford as an innovative company that is democratizing fuel economy technology for all customers now - rather than focusing only on expensive future technologies. In 2019 we announced the all-new Kuga, our best-selling SUV in Europe, will be available with a mild hybrid powertrain option. Kuga will also include full-hybrid, plug-in hybrid, EcoBlue diesel, and EcoBoost petrol versions to meet the needs of every customer in a fuel-efficient way.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

500,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

We launched the EcoBoost engine in 2009 and have produced more than 5 million of them. By 2015, annual global EcoBoost engine capacity reached approximately 2.5 million units, and more than 80 percent of our global nameplates are available with EcoBoost. If 2.5 million vehicles with an EcoBoost engine were sold at $200 premium compared to the base engine, it would increase Ford revenues by $0.5B.

Cost to realize opportunity

500,000,000

Strategy to realize opportunity and explanation of cost calculation

Ford monitors consumer behaviours, buying habits and other influential factors such as public policy and fuel costs to ensure we are providing customers the products they want and need. Providing Innovative and fuel-efficient products helps our reputation which in turn increases vehicle sales. As a result, Ford's strategy is to provide multiple pathways to fuel efficiency for customers. For example, Ford's fuel-efficient and powerful 1.0-litre EcoBoost was named International Engine of the Year in 2012-2014 and Best Sub-1 Liter engine in 2012-2017 and 2019 .and is available in 72 countries worldwide. In 2016, Ford hit 1 million sales of the EcoBoost F-150 in the US. The 2.7-liter EcoBoost engine and 3.5-liter EcoBoost engine are most popular among F-150 customers and save customers more than 110 million gallons of gasoline annually. Mild hybrids are just starting to be introduced, with the first major application on the Territory model in China and the Kuga SUV in Europe. Through our mild hybrid and EcoBoost strategy, we offer conventional, affordable, fuel-efficient vehicles to all customers. After 10 years of building our EcoBoost portfolio, applying EcoBoost in Asia, Europe and North America in a multitude of vehicle nameplates helps manage the costs through economies of scale. However, engineering costs can offset the purchase price premium. EcoBoost and mild hybrid engine engineering costs are roughly estimated at $0.5B, offsetting any price premiums we might charge.

Comment

Identifier

Opp5

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Ford's global Energy Management Operating System (EMOS) provides standardized processes and tools for managing energy efficiency at Ford facilities. Energy Efficiency opportunities are evaluated in coordination with Plant Energy Teams and documented on the plant energy roadmaps.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Identification, development, and implementation of energy efficiency opportunities to improve energy intensity (kWh/Unit).

Cost to realize opportunity

45,000,000

Strategy to realize opportunity and explanation of cost calculation

In North America, Ford continues to leverage our performance contracting process to implement energy efficiency projects. Ford is actively installing or developing lighting, compressed air, and process optimization projects at Louisville Assembly, Michigan Assembly, Dearborn Truck, Oakville Assembly, Windsor Engine and the Rouge. The cost to realize opportunity is based on financial agreements we have with our suppliers.

Comment

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes, and we have developed a low-carbon transition plan

C3.1a

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

Yes, qualitative and quantitative

C3.1b

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

Climate-related scenarios and models applied	Details
2DS	Methodology: Since 2007, Ford has created CO2 glide paths describing the average g CO2/km tank-to-wheel (TTW) emissions our new light-duty vehicles must achieve to stabilize atmospheric CO2 and temperature change. We published our methodology in 2014 (dx.doi.org/10.1021/es405651p | Environ. Sci. Technol. 2014, 48, 6453−6460), and it has evolved over time. Currently we use the IEA Energy Technology Perspectives (ETP) 2DS scenario to determine the rate of CO2 reduction needed. We selected the ETP 2DS because it provides a pathway specific to light-road vehicles. We have updated the WBCSD SMP model to calculate global (11 regions) LDV CO2 from 2000-2050, based on inputs of LDV sales forecasts (internal and IHS), vehicle turnover rates, on-road vs. test-cycle emissions (ICCT), km travelled, vehicle efficiency (L/100 km), and diesel vehicle sales shares. Every 5 years we update historical data to ensure that cumulative CO2 emissions are accurate. Given the fleet emission forecast based on the above data, we calculate the annual improvement in new vehicle TTW efficiency that is needed to keep the well-to-wheels CO2 below the CO2 cap prescribed by the 2DS scenario. The scenario output is gCO2/km TTW targets for our future new LDV fleets. Organizational scope and time horizons: Our 2DS glide path, covers the years 2000 to 2050. From the model we extract results for the light-duty fleet in the four major regions where we do business (North America, the EU, China and South America) over the near-term (5-10 years) to mid-term (15 years), currently from 2020 to 2035. Results: The TTW gCO2/km targets have the same emissions reduction rate in

	each region and are anchored at the 2010 actual fleet average g CO2/km of each region. Because we sell larger vehicles in NA than in EU and SA, fleet gCO2/km targets are highest in NA. China targets are similar to NA because of a higher starting baseline emission in the 2010 base year, while SA and EU with smaller size vehicles have the lowest regional targets. Targets in the four regions converge to similar values by 2050. Informing our strategy: The near-term (<10 years) targets indicate the rate of improvement needed within the current business plan, while the mid-term targets guide us when we study which technologies to implement in the future. Alignment of the near-term vehicle cycle plans with the 2DS CO2 glide path is assessed at least twice a year, reported at the Global Sustainability Meeting and also reviewed by the Board of Directors Sustainability and Innovation Committee. On the path to 2DS, Ford's business plan includes investing over $11.5 billion in electrification of the vehicle fleet through 2022. We have electrified key vehicles including our flagship Explorer SUV, adding Explorer HEV (US) and Explorer PHEV (Europe). Case study: The 2DS targets are crucial for mid-term to long-term (>10 years) planning, beyond where regulations end. Using the 2030-2035 glide path targets, we conducted scenario analyses to estimate fleet electrification shares of each EV type that could achieve the targets and the associated costs. We tested several electrification scenarios (e.g. BEV-intense, BEV-PHEV mixes, HEV-intense) and assessed the cost associated with the solutions. We found that an all-HEV fleet would not meet the average targets in most regions and must be supplemented with PHEVs or BEVs. This confirmed our plans of offering conventional ICE, HEV, PHEV, and BEV across many vehicle lines. Our best-selling CUV, Escape (U.S.)/Kuga (Europe) will be offered in 2020 with multiple degrees of electrification: mild-hybrid, full-hybrid, and plug-in hybrid. Ford also does qualitative climate change scenario analysis considering 4 scenarios in 2030-40 for low and high future technology and climate futures. We look at the resiliency of our strategies against these potential futures to determine if any adjustments are needed to better prepare for potential futures.
RCP 2.6	Methodology: The RCP2.6 scenario represents the 2015 Paris Climate Agreement for a 1.5 deg stabilization. It is used to understand the relative stringency of 1.5°C compared to our 2°C (2DS) scenario. Both scenarios use the same model, but with different CO2 emission limits. We apply the IPCC RCP2.6 global CO2 rate of change to set 1.5°C LDV emissions limits. Since 2007, Ford has created CO2 glide paths describing the avg gCO2/km tank-to-wheel (TTW) emissions our light-duty vehicles must achieve to stabilize atmospheric CO2 and temp change. We published our methodology in 2014 (dx.doi.org/10.1021/es405651p, Environ. Sci. Technol. 2014, 48, 6453−6460). We updated the WBCSD SMP model to calculate global (11 regions) LDV CO2 from 2000-2100, based on inputs of LDV sales forecasts (internal and IHS), vehicle turnover rates, on-road vs. test-cycle emissions (ICCT), km travelled, vehicle efficiency, and diesel vehicle sales shares. Long-term assumptions are very uncertain and held constant at 2040 estimated levels. Given fleet emission estimates based on the above data, we calculate the annual improvement in new

	vehicle TTW efficiency needed to keep the well-to-wheels CO2 below the CO2 cap prescribed by the RCP2.6 scenario. The scenario output is gCO2/km TTW targets for our future new vehicle fleets in NA, EU, China and SA that support 1.5-degree temperature change stabilization. Organizational scope and time horizons: We model the years 2000 to 2100, a longer time horizon than the 2DS scenario to capture the 2070 time frame where the RCP2.6 CO2 emissions become negative. From the model we extract results for the four major regions where we do business (NA, EU, China & SA) over the near- (5 yrs), mid- (15 yrs) & very long-term (50+ yrs), recognizing the significant uncertainty in the very-long-term input and output. Results: The RCP2.6 (1.5 degree) scenario requires more long-term CO2 reduction than the 2DS scenario. Annual gCO2/km reductions are 50-60% greater than the 2DS scenario. The RCP2.6 targets provide a mid-term outlook for CO2 emissions, beyond where regulations end. Internal strategy: Internally, we report and assess progress towards 2DS. RCP2.6 is used as a sensitivity scenario. Using the RCP2.6 allows us to understand the incremental product actions that would be needed to be on a 1.5°C pathway. Alignment of the mid-term vehicle cycle plans with the 2DS CO2 glide path is assessed 2 or more times per year by a cross-functional team from Sustainability, Env & Safety Eng (SE&SE), Research & Advanced Eng, and Product Development. The alignment status is reported at the Global Sustainability Mtg. The VP SE&SE is responsible for the Corp CO2 glide path assessment metric. Case study: The 1.5 deg scenario shows that the scenario cannot be satisfied with vehicle actions alone. The vehicle efficiency (TTW) gCO2/km reduction must be supported by low-carbon energy (WTT). The drastic reductions in CO2 that are needed require an immediate & growing shift to renewable or low carbon energy. Since energy supply is outside our immediate control we are engaging in university and government research to support system-wide understanding of future vehicle/fuel systems (e.g. USDRIVE Cradle to Grave (C2G), European JRC WTW Study) and encouraging system-wide thinking. External reporting: We report our CO2 glide path methodology publicly in our Corporate Sustainability Report disclosing that we evaluate to a 1.5 degree sensitivity scenario. Qualitatively Ford also does climate change scenario analysis considering 4 scenarios in the 2030 – 2040 timeframe for low and high technology and low and high climate futures. We look at the resiliency of our strategies against these potential futures to determine if any adjustments are needed to better prepare for potential futures. We have published this analysis along with our yearly sustainability report.

C3.1d

(C3.1d) 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	Our product and service plans in the 2020-2030 time horizon are influenced by climate change-related elements such as current and future CO2 regulations and changing market demand for mobility. . Beyond 2030, our plans are influenced by our commitment to the Paris Climate Agreement. These climate influences have resulted in our global product and service strategy in 2020-2030, with strong investment in fuel efficiency, electrification, Autonomous Vehicles and Smart City Solutions. For example, our most substantial decision made based on these influences is our electrification strategy, where we are investing $11.5B through 2022 to add many new electrified vehicles to our portfolio including BEVs, PHEVs, and HEVs such as the Lincoln Aviator PHEV, Escape/Kuga HEV and PHEV, and Explorer HEV and PHEV. In 2019 we announced Mustang Mach-E BEV would be launched in late 2020 in North America. Our fuel efficiency strategy to reduce CO2 includes our conventional vehicles and powertrains. We have increased fuel-efficient EcoBoost offerings to include more than 80 percent of our global nameplates and invested in light weighting through use of aluminium in our F-150 and Super Duty, Lincoln Navigator and Ford Expedition. For a longer time horizon (now and beyond 2030), we created a new subsidiary, Ford Smart Mobility LLC, to develop commercially ready mobility services and invest in promising mobility-related ventures. Our focus is flexible use and ownership, and multimodal urban travel solutions. In 2018 we launched FordPass Bikes in Cologne. Ford has responded to changing customer needs in large metropolitan areas by purchasing Spin, a dockless electric scooter sharing service in 2018. Spin has active operations in 16 U.S. markets, and four European cities with more to come. In 2018, we announced plans to invest $4 billion through 2023 in a new organization, Ford Autonomous Vehicles LLC, to accelerate our AV business.
Supply chain and/or value chain	Yes	Extreme weather events or other effects of climate changes including droughts and floods, can pose a risk and influence management of our supply chain.

		Ford has long been committed to reducing its impact on the environment by implementing leading sustainable practices at our facilities. After proven progress, Ford wanted to share best practices with our suppliers around the globe through the Partnership for A Cleaner Environment (PACE) program. Each year since 2014, Ford actively engages with suppliers through the PACE program, with the goal of helping them reduce their environmental impacts and be more responsive to climate change issues such as CO2 emissions and extreme weather events such as droughts and floods. Following an increase in environmental regulatory requirements in the Asia Pacific markets, Ford was prompted to implement risk reduction efforts to ensure business continuity. In 2019, Ford made a substantial business decision to launch an incremental streamlined version of the PACE program, called FastPACE. The initiative was offered to China, India and Thailand Supplier Forum members, which focused our engagement with suppliers located in regions that could face exposure to climate-related risks such as floods, water stress and environmental regulatory requirements. Ford plans to continue and regionally expand the FastPACE program in the near term (2020-2025). Through the PACE and FastPACE programs, Ford shares leading environmental actions with suppliers and encourages them to plan and apply these actions in their own facilities in the near and far term time horizon (2020s through mid-2030s) in an effort to improve operational efficiencies, minimize supply risk and improve human and environmental health. Both initiatives encourage target setting and action on air and CO2 emissions, water use and waste (PACE only).
Investment in R&D	Yes	Climate change affects current and future vehicle regulations and and led to our commitment to the Paris Climate Agreement beyond the regulatory timeframe. The influences have resulted in increased investment in global R&D to support EV implementation, light-weighting and other CO2 and fuel economy initiatives in the 2012-2030 time frame. The most substantial business decision is to invest in electrification R&D as part of our comprehensive $11.5 B investment to add many new electrified vehicle (EV) solutions to our global portfolio by 2022 including BEVs, PHEVs, and HEVs with the Escape PHEV and Mustang Mach-E BEV scheduled to launch in 2020. Our R&D budget

		has substantially increased from $6.2 billion in 2013 to $7.4 billion in 2019, including research in electrification, fuel economy and light-weighting. We have increased fuel economy by developing more EcoBoost engines that are now offered on over 80 percent of our global nameplates. Another significant R&D investment was for research and development of light-weighting to improve fuel efficiency through increasing use of aluminium in our vehicles from 2015-2018 and beyond: F-150 (2015), Super Duty trucks (2017), and Lincoln Navigator and Ford Expedition (2018).
Operations	Yes	Our operational strategy has been influenced by climate particularly in operating locations where there are risks of floods and drought. We've developed our water strategy in the near and the far time horizons (2020s through 2030s) to prioritize addressing our water use, supplier water use and community water issues in water-stressed regions identified using WRI Aqueduct and WWF Water Risk Filter. We are investing in water-saving technologies and process improvements across our global operations. One of the most substantial business decisions made was at our Ford CSAP in Mexico, where we have invested over $1.6 million dollars over 2009-2011 in water saving/reuse projects like WWTP recycling system, utilizing a gray water source and separation of drinking water from industrial recycled water. Wherever feasible, we take successful projects and mirror them in other locations. Our newest plants use a set of advanced and environmentally friendly technologies to dramatically cut water use such as implementing membrane biological reactors (MBR) and reverse-osmosis processes to recycle water from our on-site wastewater treatment plants in arid regions, such as at plants in Chihuahua and Hermosillo, Mexico; Pretoria, South Africa; Chennai, India; and Chongqing, China. We assess the risks each of our facilities faces (with input from third-party engineers) at least annually. This risk assessment is updated based on new data and takes into account the risk of exposure to hurricanes, tornadoes, other storms, flooding and earthquakes. Extreme weather has the potential to disrupt the production of natural gas, a fuel necessary for the manufacture of vehicles. Supply disruptions raise market rates and jeopardize the consistency of vehicle production. The magnitude of impact is significant in areas where there is extreme weather that could disrupt the production of natural

		gas.

C3.1e

(C3.1e) 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 Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital	Indirect Costs: Climate related issues have an influence effect on our indirect cost strategy. Our plans to meet the CO2 reductions required for climate stabilization call for Significant vehicle electrification. This influence also increases indirect costs such as production and engineering wages, development, and testing costs. In 2019 we announced Ford will add 300 jobs and invest about $700 million (part of our global $11.5B investment), at Ford's Dearborn manufacturing site, to support production of new electrified variants of our F-150 truck, producing both an F-150 hybrid and fully electric F-150. Ford will also create a new operation in Dearborn where battery cells will be assembled into a battery pack for the F-150 hybrid and all-electric F-150. The time horizon is from 2018-2022. The $700 million investment is part of our announced global $11.5B investment from 2018-2022. The electrified F-150 models will be produced beginning in 2020. Differing types of electrification (BEVs, PHEVs, HEVs, and mHEVs) require their own engineering development and testing costs. For this reason, we also work to commonize designs and parts in order to scale these costs while still meeting customer needs. Our indirect costs for electricity are also influenced affected as we plan to address climate change by procuring renewable electricity for our facilities. This time horizon began from 2019- and extends to 2035. Our aspirational goal is to power all our global manufacturing plants globally with 100% renewable energy by 2035. We have contracted with DTE to procure 500,000 MWh of locally sourced renewable energy to power our Southeast Michigan portfolio of facilities by January 2021. Ford is already using 100 per cent green electric energy to power all Ford facilities in UK, Craiova plant, Romania, and in Cologne, Germany. To address climate change our indirect maintenance costs were influenced by including upgrades to more efficient systems to reduce energy use and CO2 emissions. In 2019, Ford implemented more than $19.7M in energy efficiency projects which will deliver more than $3.7M in annual energy and operations savings. The projects included interior and site LED lighting conversions and paint system optimization. The time horizon for indirect cost savings is from installation through the

		lifetime of the equipment. In 2018, Ford implemented more than $18M in energy efficiency projects which will deliver more than $4M in annual energy savings. The projects included LED lighting conversions, paint system optimization, and compressed air system controls modernization. Climate-change can also cause supply disruption events resulting in an influence of increased indirect costs for transportation. These increased costs can be due to premium logistics, an increase in internal resource allocation required to manage the events, and potentially increased costs of business interruption (including increased insurance for plant shutdowns). Although major climate related events effecting production are not frequent, given the unpredictability and potential impact on company financials, Ford continually evaluates risk mitigation strategies (i.e. supplier offsite inventory storage) where the business case makes sense. As the frequency of these events increase, ongoing financial provisions are necessary to plan and prepare for the mitigation efforts. Actions taken to mitigate climate change such as water treatment facilities particularly in drought-prone areas or natural gas reserves may result in increased costs. In 2018, Ford implemented more than $18M in energy efficiency projects which will deliver more than $4M in annual energy savings. The projects included LED lighting conversions, paint system optimization, and compressed air system controls modernization.

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

Target reference number

Abs 1

Year target was set

2018

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Base year

2017

Covered emissions in base year (metric tons CO2e)

4,168,442

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)

100

Target year

2023

Targeted reduction from base year (%)

16.2

Covered emissions in target year (metric tons CO2e) [auto-calculated]

3,493,154.396

Covered emissions in reporting year (metric tons CO2e)

3,636,301

% of target achieved [auto-calculated]

78.8021276931

Target status in reporting year

Underway

Is this a science-based target?

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

Please explain (including target coverage)

An original goal was set in 2010, aiming to reduce the company's global carbon dioxide emissions from manufacturing operations by 30 percent per vehicle produced by 2025. Ford achieved that goal in 2017, eight years ahead of schedule. A new goal has been developed using science-based methodology and 2DS. With 2017 as the baseline year, an absolute target has been set for an absolute tCO2e reduction of 16.2% by 2023. (SBTi). We plan on submitting targets for Scope 1, 2, and 3 (use of sold products) for SBTi approval within 2 years.

Progress: ABSOLUTE TARGET 1 is a 16.2% reduction in Scope 1+Scope 2(location-based) between 2017 and 2023. The 2017 base year emissions are 4168442 t CO2e. 16.2% of 4168442 is 675287.6 tCO2e reduction required by 2023.
In 2019 our S1+S2(loc) emissions are 3636301 t CO2e, which is 4,168,442-3,636,301=532,141 t CO2e lower than 2017. We have reduced 532,141 t out of the 675,287.6 t needed to meet the reduction target. 532,141 /675,287.6=0.788=78.8% of the reduction target has been achieved.

Target reference number
Abs 2

Year target was set
2018

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 1+2 (location-based)

Base year
2017

Covered emissions in base year (metric tons CO2e)
4,168,442

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
100

Target year
2035

Targeted reduction from base year (%)
75

Covered emissions in target year (metric tons CO2e) [auto-calculated]
1,042,110.5

Covered emissions in reporting year (metric tons CO2e)
3,636,301

% of target achieved [auto-calculated]
17.0212595817

Target status in reporting year
Underway

Is this a science-based target?

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

Please explain (including target coverage)

An original goal was set in 2010, aiming to reduce the company's global carbon dioxide emissions from manufacturing operations by 30 percent per vehicle produced by 2025. Ford achieved that goal in 2017, eight years ahead of schedule. A new goal has been developed using science-based methodology and 2DS. With 2017 as the baseline year, our goal of 100% renewable scope 2 energy at manufacturing locations gives us 75% reduction in scope 1+scope 2 absolute tCO2e by 2035. We plan on submitting targets for Scope 1, 2, and 3 (use of sold products) for SBTi approval within 2 years. Ford intends to establish targets and metrics for select suppliers starting in early 2021.

Progress: ABSOLUTE TARGET 2 is a 75% reduction in Scope 1+Scope 2(location-based) between 2017 and 2035. The 2017 base year emissions are 4,168,442 t CO2e. 75% of 4,168,442 is 3,126,332 tCO2e reduction required by 2035.
In 2019 our S1+S2(loc) emissions are 3,636,301 t CO2e, which is 4,168,442-3,636,301=532,141 t CO2e lower than 2017. We have reduced 532,141 t out of the 3,126,332 t needed to meet the reduction target. 532,141/3,126,332 = 0.17=17% of the reduction target has been achieved.

C4.1b

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

Target reference number

Int 2

Year target was set

2020

Target coverage

Country/region

Scope(s) (or Scope 3 category)

Scope 3: Use of sold products

Intensity metric

Grams CO2e per revenue passenger kilometer

Base year

2019

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

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

Target year

Targeted reduction from base year (%)

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

% change anticipated in absolute Scope 1+2 emissions

% change anticipated in absolute Scope 3 emissions

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

% of target achieved [auto-calculated]

Target status in reporting year

New

Is this a science-based target?

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

Please explain (including target coverage)

We previously had an internal 2°C planning target for light-duty vehicles sold in the U.S., EU. We consider this a science-based target, but it was not approved as science-based by the Science Based Targets initiative. As part of our regular 5-year review cadence, we are updating to a well-below 2°C target, to align with recent climate science recommendations. We plan to set targets using the Science Based Targets Initiative guidance and submit for SBTi approval.

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

C4.2a

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

Target reference number
Low 1

Year target was set
2018

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: energy carrier
Electricity

Target type: activity
Consumption

Target type: energy source
Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)
Percentage

Target denominator (intensity targets only)

Base year
2017

Figure or percentage in base year
23.3

Target year
2035

Figure or percentage in target year
100

Figure or percentage in reporting year
29.7

% of target achieved [auto-calculated]
8.3441981747

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes. This target is our carbon reduction strategy, with an aspirational goal of increasing the share of renewable scope 2 energy used at our plants. We combine this renewable energy target with our 2DS absolute CO2 emissions target for Scope 1 CO2 emissions to set our Scope 1+Scope 2 targets described in question C4.1a.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

With 2017 as the baseline year, we have a goal of achieving 100% renewable scope 2 energy by 2035 at our manufacturing locations. This is a company-wide target. It includes all global manufacturing locations where we have operational control. We are in the second year of this target and have finalized additional renewable energy contracts to date, one in Michigan, USA, one in Argentina, one in Romania, and one for all our locations in the UK. Through DTE's MIGreenPower program Ford will procure 500,000 megawatt hours of locally sourced Michigan wind energy. In the UK, Ford has been procuring 100% renewable electricity for all our UK locations, translating to approximately 190,000 megawatt hours, since October 1, 2019. Ford is evaluating renewable electricity supply for South Africa as well as Mexico. We continue to work with local utilities to increase the share of renewable electricity each year. At the Cologne manufacturing site, we continue to procure 100% renewable electricity. Ford has partnered with DTE for many years to allow them to generate RE at several of our locations. This is also expanding to one of our new parking decks. However, DTE retains carbon credits from these installations. For many years Ford has partnered with a third party who provides onsite renewable energy via wind turbines at one of our UK facilities.

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	4	0
To be implemented*	1	434

Implementation commenced*	3	44,089
Implemented*	2	23,689
Not to be implemented	0	0

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
Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

11,153

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2,836,305

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

7,346,681

Payback period

4-10 years

Estimated lifetime of the initiative

16-20 years

Comment

LED Lighting in multiple locations.

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

12,536

Scope(s)

Scope 1
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
1,925,861

Investment required (unit currency – as specified in C0.4)
12,390,419

Payback period
4-10 years

Estimated lifetime of the initiative
16-20 years

Comment
Paint system optimization.

C4.3c

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

Method	Comment
Other	In North America, Ford continues to use energy performance contracting as a financing tool to upgrade and replace infrastructure at its plants, commercial buildings and research facilities. Through these contracts, Ford partners with suppliers to replace inefficient equipment, funding the capital investment over time through energy savings. Projects have been implemented to upgrade lighting systems, paint booth process equipment and compressed air systems, and to significantly reduce the use of steam in Ford's manufacturing facilities.
Partnering with governments on technology development	In 2013, Ford joined the U.S. Department of Energy's (DOE) Better Buildings, Better Plants program, a national partnership initiative to drive a 25 percent reduction in industrial energy intensity in 10 years against a 2011 baseline. 24 of Ford's U.S. plants are part of this initiative.
Dedicated budget for low-carbon product R&D	For the past eight years, Ford has been following an ambitious plan of vehicle technology and alternative powertrain and fuel actions. By implementing this consistently, we are improving fuel economy and reducing CO2 emissions across our product portfolio consistent with the Paris Climate Accord and working toward a more sustainable future. Our Global Technology Migration Path for CO2 Reduction detailing now, near

	and far actions related to IC engines, transmissions, alternative fuels, hydrogen, electrification, energy management, weight reduction, and mobility, is available at http://corporate.ford.com/microsites/sustainability-report-2019-20/customersproducts/emissions/index.html. Ford announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022. In 2018, we also announced plans to invest to invest $4 billion through 2023 in Ford Autonomous Vehicles LLC.
Partnering with governments on technology development	Ford has developed a Paint Emissions Concentrator (PEC) technology which uses a fluidized bed adsorber, coupled with desorption and condensation equipment to collect and concentrate solvent emissions into a liquid. The intent of the technology is to collect a portion of the VOCs from the spraybooth exhaust, super-concentrate them in the PEC, then condense and store them on-site for possible use as a fuel or recycle back to the production process. In this way, overall VOC emissions from the paintshop are reduced. Ford is currently working to optimize this technology at our Oakville facility. Ford's PEC technology has the potential to reduce CO emissions by 20 – 50% compared to traditional abatement equipment. Also, PEC technology, combined with recycle of the collected solvents has the potential to eliminate nitrogen oxide emissions compared to conventional abatement approaches which involve the oxidation of solvents. Ford is currently working to optimize adsorbent performance and recycle of collected solvents back to the production process.
Compliance with regulatory requirements/standards	Investments in our products can be driven by environmental regulatory requirements and it is Ford's policy to comply with all environmental regulations. For example, regulatory requirements have driven vehicle improvements such as light-weighting or the introduction of the EcoBoost engine.

C4.5

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

Yes

C4.5a

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

Level of aggregation

Group of products

Description of product/Group of products

Ford offers a wide-variety of electrified vehicles which enable our customers to reduce their CO2 emissions while driving. Our electrified vehicle types include battery electric vehicles, plug-in hybrid electric vehicles, hybrid electric vehicles, and mild hybrid vehicles. We also have redesigned our F-150, F-250, Expedition and Navigator to use light-weight aluminium to reduce vehicle weight and improve fuel economy for the vehicle owners.

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

Avoided emissions

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

Climate Bonds Taxonomy

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

1.5

Comment

HEVs and PHEVs provided lower fuel consumption for our customers resulting in reduced CO2 emissions. In the US, for example, customers who purchased Fusion Hybrids and Fusion Energis (PHEV) using US average electricity have saved over 3.8 million tonnes of CO2 compared to purchasing a conventional 2.5L Fusion since 2009. The Climate Bonds Taxonomy (CBT) is used to determine if the Fusion Hybrid and Fusion Energi can be classified as low-carbon transport. From Table 2 of the CBT document “Low Carbon Land Transport and the Climate Bonds Standard, v. 1”, to be classified as low-carbon, passenger vehicle direct emissions must reach 77 gCO2e/p-km in 2019 (interpolated). The 2019 Fusion Energi is rated at 99 gCO2/mile by the US EPA which converts to 37 gCO2e/p-km, assuming a passenger load factor of 1.67, satisfying the low-carbon classification criterion. The 2019 Fusion Hybrid is rated 212 gCO2/mile, or 79 gCO2e/p-km (load-factor=1.67), just shy of the low-carbon target, but met the target when it was introduced in 2016. We engage in engineering, research, and development primarily to improve the performance (including fuel efficiency), safety, and customer satisfaction of our products, and to develop new products and services (including for emerging opportunities). Engineering, research, and development expenses for 2015, 2016, 2017, 2018, and 2019 were $6.7B, $7.3B, $8B, $8.2B, and $7.4B, respectively.

C5. Emissions methodology

C5.1

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

Scope 1

Base year start
January 1, 2017

Base year end
December 31, 2017

Base year emissions (metric tons CO2e)
1,389,740

Comment
New Ford Carbon Reduction Strategy with 2017 as the baseline year for absolute tCO2e reductions.

Scope 2 (location-based)

Base year start
January 1, 2017

Base year end
December 31, 2017

Base year emissions (metric tons CO2e)
3,402,552

Comment
New Ford Carbon Reduction Strategy with 2017 as the baseline year for absolute tCO2e reductions.

Scope 2 (market-based)

Base year start
January 1, 2017

Base year end
December 31, 2017

Base year emissions (metric tons CO2e)
3,263,994

Comment
Ford has met its 2025 target in 2017 with 2010 as a base year.

C5.2

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

ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
Other, please specify

As required by regulation or requirement

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

ISO 14064-1, , US EPA Mandatory Greenhouse Gas Reporting Rule, Brazil GHG Protocol Programme US EPA Mandatory Greenhouse Gas Reporting Rule The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), Ontario's GHG Emissions Reporting Regulation, Ontario Regulation 452/09

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)

1,451,947

Comment

In 2018 we emitted 1442963 t CO2e. In 2019 we emitted 1451947 t CO2e. The change in our Scope 1 emissions from 2018 to 2019 is an increase of 0.6%: [(1451947/1442963)-1=0.006]

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

C6.3

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

Reporting year

Scope 2, location-based

3,195,704

Scope 2, market-based (if applicable)

3,068,182

Comment

Ford implemented an updated methodology in the 2017 emissions year data, by using updated IEA emission factors for all locations outside the United States. For locations in the US, Ford used the USEPA emission factors. In 2019, Ford also added additional Scope 1 and Scope 2 data through a new Ford global office building inventory system (TRIRIGA).
Progress S2 location-based: In 2018 we emitted 3349808 t CO2e. In 2019 we emitted 3195704 t CO2e. The change in our Scope 2 location-based emissions from 2018 to 2019 is a decrease of 4.6%: [(3195704/3349808)-1=-0.046]
Progress S2 market-based: In 2018 we emitted 3219716 t CO2e. In 2019 we emitted 3068182 t CO2e. The change in our Scope 2 market-based emissions from 2018 to 2019 is a decrease of 4.7%: [(3068182/ 3219716)-1=-0.047]

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

Equipment and Vehicle Testing Fuels (at various manufacturing sites): Small amounts of gasoline, diesel, and propane combustion for vehicle testing, emergency equipment operation, onsite vehicles, small space heating, and other applications at manufacturing sites and vehicle testing sites.

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

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

No emissions from this source

Explain why this source is excluded

Compared to our Scope 1 and Scope 2 Reported Emissions, the GHG Emissions from this fuel group were estimated to be about 1.76% the size of our reported emissions.

Source

Refrigerant Leakage from refrigeration equipment at manufacturing sites and large research sites.

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

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

No emissions from this source

Explain why this source is excluded

Compared to our Scope 1 and Scope 2 Reported Emissions, the GWP impact from refrigerant leakages at manufacturing sites and large research sites was estimated to be about 1.04% the size of our reported emissions.

Source

Refrigerant Leakage occurring during vehicle A/C system charging at Assembly Plants

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

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

No emissions from this source

Explain why this source is excluded

Compared to our Scope 1 and Scope 2 Reported Emissions, the GWP impact from refrigerant leakages occurring during vehicle A/C system charging at assembly plants was estimated to be about 0.57% the size of our reported emissions. As the automotive industry transitions to using refrigerant 1234yf for vehicle A/C systems, we expect the GWP impact from this category of emissions to fall below 0.01%.

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

Metric tonnes CO2e

39,676,648

Emissions calculation methodology

Emissions for purchased goods and services are estimated using a combination of primary and secondary data. Primary data from suppliers who reported validated Scope 1, 2, and 3 emissions (in categories 1, 4, and 5) to Ford through the CDP Supply Chain climate change questionnaire was considered reliable for this analysis. However, this accounted for only about 19% of total spend. Therefore, for our estimate to be representative of 100% spend in this category, we relied on secondary data for scale-up. This was accomplished using an average carbon intensity metric (metric tonnes CO2e/$) calculated from primary supplier data, which was representative of Ford's purchased goods and services suppliers who reported reliable emissions data, and multiplying it using spend not already accounted for by primary data. Please note that CO2 emissions from suppliers of upstream transportation are not included in this category as indicated in the GHG protocol to avoid double counting with scope 3, category 4 (upstream transportation and distribution).

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

19

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Purchased goods and services are 8.5 times greater than S1+S2 and therefore determined to be relevant. In 2019 , Ford asked approximately 250 selected production and indirect suppliers to report their greenhouse gas emissions and management through CDP Supply Chain's climate change questionnaire and about 200 responded. However, only data from a fraction of those purchased goods and services suppliers, which had been independently verified, was considered reliable for our Scope 3 calculations. These suppliers represent about 19% of spend on purchased goods and services. Therefore, an average carbon intensity metric (metric tonnes CO2e/$), which was representative of Ford's purchased goods and services suppliers who reported reliable emissions data, was used to scale-up the remaining Scope 3 emissions for this category. As we continue to increase the quantity and quality of supplier-reported data, we will revise these estimates. Ford intends to establish targets and metrics for select suppliers starting in early 2021.

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,280,384

Emissions calculation methodology

Emissions for capital goods are estimated using a combination of primary and secondary data. Primary data from suppliers who reported validated Scope 1, 2, and 3 emissions (in categories 1, 4, and 5) to Ford through the CDP Supply Chain climate change questionnaire was considered reliable for this analysis. However, this accounted for only about 3% of total capital goods purchases. Therefore, for our estimate to be representative of 100% spend in this category, we relied on secondary data for scaleup. This was accomplished using an average carbon intensity metric (metric tonnes CO2e/$) calculated from primary supplier data, which was representative of Ford's capital goods suppliers who reported reliable emissions data, and multiplying it using spend not already accounted for by primary data.

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

3

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Capital goods are 28% of S1+S2 and therefore determined to be relevant. In 2019 , Ford asked approximately 250 selected production and indirect suppliers to report their greenhouse gas emissions and management through CDP Supply Chain's climate change questionnaire and about 200 responded. However, only data from a fraction of those capital goods suppliers, which had been independently verified, was considered reliable for our Scope 3 calculations. These suppliers represent about 3% of spend on capital goods. Therefore, an average carbon intensity metric (metric tonnes CO2e/$), which was representative of Ford's capital goods suppliers who reported reliable emissions data, was used to scale-up the remaining Scope 3 emissions for this category. As we continue to increase the quantity and quality of supplier-reported data, we will revise these estimates.

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,066,000

Emissions calculation methodology

Following the GHG protocol, we identified upstream emission factors and applied them to our scope 1 and scope 2 energy consumption. The energy was itemized by fuel type

or electricity and represents both our manufacturing facilities and non-manufacturing locations globally. The upstream emission factors for fuels and purchased electricity are obtained from the Argonne National Lab's GREET 2019 model. Electricity T&D loss rates are from the World Bank database recommended by the GHG protocol.

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

0

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Fuel and energy-related activities are 23% of S1+S2 and therefore determined to be relevant

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2,102,900

Emissions calculation methodology

Our calculation methods are aligned to the Greenhouse Gas Protocol and to EN 16258 and similar initiatives. Our standardized approach calculates CO2e emissions for each of our freight networks. For analysis we then divide the figures by the number of vehicles we have manufactured using the parts and other material transported on these networks. This allows us to compare the relative performance for different vehicle programs and against year on year improvement targets. We base our calculations on secondary data of distance traveled, loading etc. provided by our logistics service providers and use detailed emissions factors from internationally recognized bodies appropriate to the transport mode. Where possible, we update these factors with data with average fuel economy from our carriers. For rail and ocean, we get usage data direct from our freight operators. We here consider our freight in two categories: 1) Inbound freight from our parts suppliers to our manufacturing & assembly plants the inbound freight network is generally on a collect basis using contracted carriers paid by us. For reporting purposes, we include all emissions from collected tier 1 suppliers to our manufacturing sites as well as an allowance for transport of empty packaging back to our supply base. This includes road, rail and ocean modes. We consider freight emissions from suppliers upstream of our tier 1 suppliers to be covered within their own scope 3 submissions. Our outbound data considers transport from factory gate to handover to dealer. 2) Transport of finished vehicles from our manufacturing & assembly plants to our dealers This freight is generally using dedicated car carrying equipment carried out by contracted carriers and paid for by us. In many regions we have the same Lead Logistics Providers supporting both inbound and finished vehicles which helps ensure consistency of approach in CO2 reporting. To produce global data, we have used our calculated CO2e per unit figures for appropriate networks and multiplied these figures against vehicles produced in each region. We have added a

10% contingency to allow for other elements of freight not covered in the main calculations including premium freight. Note: Inbound (upstream) = 1374700 Metric Tonnes CO2e, Finished vehicle (downstream) = 728200 Metric Tonnes CO2e

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

0

Please explain

This value includes downstream T&D (Scope 3, category 9) as well as upstream T&D. We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Upstream and downstream transportation and distribution are 45% of S1+S2 and therefore determined to be relevant. Ford carries out comprehensive CO2 emissions reporting for all our major upstream freight networks. Over the years we have expanded the coverage to include all regions and developed the calculation processes in line with industry best practices. From 2011, we began reporting CO2e figures to take account of emissions of other greenhouse gases including N2O and Methane. The great majority of greenhouse gas emissions from our transportation and distribution operations consists of CO2 exhaust emissions from our transport. We have a clear policy to measure & reduce our CO2 emissions. Our corporate business policies include specific objectives on monitoring freight CO2 emissions, reducing fleet fuel usage, improving average fleet emissions levels, improving freight utilization and carrying out business case studies to improve the % usage of green routes. Activities that directly reduce our reported emissions include network redesign, use of alternative fuels and lubricants, use of aerodynamics and driver training. We recognize that work on reducing CO2 emissions has additional benefits in reducing levels of other pollutants and reducing volumes of heavy goods traffic. In some locations we use truck fleets we own and directly control. In these cases, we are able to monitor fuel usage in detail and apply best practices to improve our operational efficiency as recognized by appropriate authorities such as EPA SmartWay and the Freight Transport Association (in the UK). Our reporting processes are aligned to the GHG Protocol and the recently published European Standard EN 16258. We work proactively with industry bodies to promote best practice in freight GHG reporting. In Europe we were lead writer within the initiative by Odette to publish standard guidelines for freight GHG emissions reporting for the Automotive Sector.

Waste generated in operations

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

9,297

Emissions calculation methodology

In order to estimate scope 3 emissions from waste generated at Ford's facilities, the US EPA WARM model Version 15 was used. Metric Tons CO2e estimate is based on global, landfilled waste.

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

0

Please explain

We consider waste generated in operations to be not relevant because it is very small compared to Scope 1 + Scope 2. In 2019, Ford avoided over 4.5 million metric tons of greenhouse gas emissions through recycling and non-landfill alternative disposal options. We are continuing to reduce the amount of waste sent to landfill every year through our Global Waste Strategy. 102 Ford manufacturing and non-manufacturing facilities send zero waste to landfill. Of particular note is the closed loop aluminium recycling process used in the production of Ford's trucks. As the scrap aluminium goes directly from a Ford facility to the supplier, it is not included in the calculations here. Ford recycles as much as 20 million pounds of aluminium stamping scrap per month using the closed-loop system at Dearborn Stamping Plant, which provides parts to build F-150 at Ford's Dearborn Truck and Kansas City Assembly Plants. Recycled aluminium avoids 95 percent of the greenhouse gas emissions associated with primary aluminium production. It uses significantly less energy and water also.

Business travel

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

61,306

Emissions calculation methodology

Ford utilized total GLOBAL booked air, rail and rental car miles travelled for 2019 and applied emission factors based on the methodology provided in Section 2.2 and Section 2.4 of the USEPA guidance document noted below. Ford utilized the guidance document provided by the USEPA and recommended by The Climate Registry located at:
http://www.epa.gov/climateleadership/documents/resources/commute_travel_product.pdf Document title: USEPA, Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance, Optional Emissions from Commuting, Business Travel and Product Transport (EPA430-R-08-006). Air Travel: 61,306 Rail Travel: 0 Car: 0

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

100

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Business travel is less than 1% of S1+S2, therefore not relevant, but calculated nonetheless . Though this is a very small element in our overall GHG footprint, we are reducing employee travel and commuting emissions in a number of

ways, including allowing telecommuting, encouraging virtual meetings, and facilitating employee's use of electric vehicles by offering on-site vehicle charging at many facilities.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

803,387

Emissions calculation methodology

We conducted a global employee commuting survey in 2019, gathering data about commute distance, number of commuting days, travel mode, and vehicle make/model/year. CO2 emissions for each employee were calculated as # Days x Distance per Day x CO2/distance factors and summed to get total emissions by region. The regional totals were extrapolated from the survey sample to the entire 2019 employee population. The CO2/distance emission factors were obtained from multiple sources as follows. For cars and light trucks, vehicle efficiency (MPG, L/100 km, kWh/100 km, or g CO2/km) are from www.fueleconomy.gov (U.S.) or UK Vehicle Certification Agency (rest of the world). The vehicle factors are multiplied by fuel emission factors (g CO2/L fuel) from Argonne National Laboratory's GREET model to get gCO2/km. For public transit modes, the CO2/distance factors are from UK DEFRA and US EPA. Electricity CO2 factors (kg/MWh) are from US EPA eGRID.

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

0

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Employee commuting is 17% of S1+S2, and therefore deemed to be relevant. In 2018 we expanded to report employee commuting data beyond the U.S. Emissions are double counted in this category and Scope 3 Use of Sold products because most of our employees commute using Ford vehicles. Though this is a small element in our overall GHG footprint, we are reducing employee travel and commuting emissions in a number of ways, including allowing telecommuting, encouraging virtual meetings, and facilitating employees' use of electric vehicles by offering on-site vehicle charging at many facilities. In 2018, Ford employees charged their plug-in hybrid electric vehicles (PHEVs) at work more than 43,000 times and reduced CO2 emissions by approximately 61,000 kg compared to driving their PHEVs in gasoline mode.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Leased assets are included in Scope 1 and Scope 2 calculations

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

Downstream data for this category is reported under category 4, Upstream T&D. Downstream transport of finished product (vehicles) to our retail network (dealerships) is carried out using freight that we pay for and control. Based on our understanding of GHG Protocol Scope 3 Category definitions we have therefore included these emissions within Category 4- Upstream Transportation.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Most of our vehicles are finished products requiring no processing for customer use. A small fraction, 6.5% of our US vehicle production volume, is ”incomplete vehicles”. An incomplete vehicle consists of at a minimum a chassis and powertrain and often includes some front body and may require some post-processing. Such post-processing is deemed to be not relevant as it is considerably less CO2 intensive than production of the incomplete vehicles themselves, which is captured in our Scope 1 and Scope 2 emissions.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

134,760,000

Emissions calculation methodology

2019 sales and gCO2/km emissions data for cars and light commercial vehicles were collected for US, EU, China, Canada, Mexico, Brazil, Australia and India. These regions represent about 87% of all vehicles sold in 2019. The global fleet average sales-weighted tailpipe gCO2/km was calculated from regional regulatory FE/CO2 data. Multiplying the fleet average gCO2/km by an assumed 150,000 km/veh lifetime and by the number of vehicles sold in 2019, the total lifetime CO2 emissions of the 2019 new vehicle fleet were calculated.

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

0

Please explain

We consider Scope 3 emission categories to be relevant if they are comparable to Scope 1+Scope 2 emissions. Use of Sold Products is 29 times greater than S1+S2, and therefore deemed to be relevant. Following the GHG Protocol guidance, we calculate use of sold products emissions as the tailpipe (tank-to-wheels (TTW)) CO2 emitted over the lifetime of the passenger cars, light trucks and light commercial vehicles we sold in 2019. This calculation includes about 87% of total wholesales reported in our annual report, although sales reporting and FE/CO2 data vary between calendar year and model year by country.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,360,000

Emissions calculation methodology

We used a vehicle disposal factor of 238 kg CO2e/vehicle or 0.165 kg CO2eq/kg from GREET2019. We applied the factor to 2019 sales data for cars, light trucks, and light commercial vehicles in the U.S., EU, China, Canada, Mexico, Brazil, Australia and India. These regions represent about 87% of all vehicles sold in 2019. The U.S. calculation was based on vehicle mass using the GREET per kg disposal factor. All other regions used the GREET per vehicle disposal factor.

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

0

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. End of Life is 29% of S1+S2, and therefore deemed to be relevant. The emissions from the ELV (end of life, vehicle) stage are considered in all Ford LCA activities. From those and other auto industry studies (e.g. Life Cycle Assessment of Lightweight and End-of-Life Scenarios for Generic Compact Class Passenger Vehicles) we have learned that the environmental impact of the ELV stage accounts for 1-3% throughout the entire life cycle. In addition, they depend very much on the local conditions of the ELV treatment operators on which Ford has no influence. These learnings are influencing our decisions to set the right emphasis on the different areas of our sustainability strategy.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

A downstream leased asset is a Ford owned facility that we lease some or all to non-Ford tenants. The combined emissions for those facilities would be less than 5% of Scope 1+Scope 2 emissions, our threshold for relevance.

Franchises

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1,957,800

Emissions calculation methodology

Ford's U.S. dealerships were analysed comprehensively, and based on their utility usage, an annual average GHG footprint of 600 metric tons CO2e per dealership was determined. This emission factor was applied across 3263 United States dealerships, to arrive at the reported cumulative emissions. However, this emission factor is not representative of worldwide Ford dealerships. Owing to substantial variability in global dealership footprint and corresponding utility use (based on region-specific weather), it is reasonable to not extrapolate emissions across the entirety of Ford's dealership base. Going forward, we will try and understand region-specific dealership carbon footprints, and build on the presently reported figure. As an emissions reduction initiative, the Ford Go Green Dealership Program was developed and offered to dealerships throughout the United States. Over 1600 dealerships participated representing approximately 50% of the total national dealership body. Detailed assessments were prepared for each participating dealership identifying specific utility upgrades that, if implemented, would result in energy savings for the dealership. An average dealership can save $35,000 in energy cost by implementing the recommendations of the assessment, which could result in a carbon footprint reduction of 210 metric tons of carbon dioxide per year. In 2018, at least 20% of dealerships implemented on average 60% of the recommendations. The total annual carbon footprint reduction calculates to be 40,000 metric tons for the energy improvements made by dealership through this date. The Go Green Dealership program ended in 2018.

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

100

Please explain

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Franchises are 42% of S1+S2, and therefore deemed to be relevant. We have completed the assessments performed as part of the "Go Green" Dealer Sustainability Program we launched in 2010. The program addressed efficiency improvements and cost savings at dealerships in the areas of lighting, HVAC, building envelope, water use and renewable energy applications. Each participating dealership received a Go Green Assessment identifying opportunities to increase their utility efficiencies, lower their energy costs and reduce their carbon footprints. As of the mid-2018, nearly half of our 3,263 U.S. dealers had completed these assessments as part of

the electric vehicle (EV) and “Trustmark” programs. These assessment reports identified that the average dealership has the opportunity to reduce their energy consumption by 25 percent, resulting in an annual savings of $35,000 with a payback of 4 years. Upgrading lighting systems is specifically attractive and may have paybacks of one year. Ford Land has developed a listing of recommended lighting fixtures available to dealerships at Ford preferential pricing. This data is available to dealerships for their use in upgrading their lighting systems so that they can achieve quality lighting at preferred pricing and achieve excellent returns on their investments.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

Compared to vehicle use phase and other, larger scale categories this is small impact. Ford Motor Company is not an investment company. We include the scope 1+scope 2 emissions from our financing subsidiary, Ford Credit, in our total scope 1 + scope 2 emissions.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

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

No

C6.10

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

Intensity figure

0.0000298

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

4,647,652

Metric denominator

unit total revenue

Metric denominator: Unit total

155,900,000,000

Scope 2 figure used

Location-based

% change from previous year

1.41

Direction of change

Decreased

Reason for change

Emissions decreased at a higher rate than revenue. The 2018 intensity figure was 0.0000294 with gross total emissions of 4707631 and gross revenue of 160338000000. This allowed for a decrease of 1.4% using ((0.0000294-0.0000298)/0.0000294)). Energy improvement projects for lighting efficiencies and process optimization at manufacturing locations lead to the total decrease in emissions.

Intensity figure

0.87

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

4,647,652

Metric denominator

unit total revenue

Metric denominator: Unit total

5,351,771

Scope 2 figure used

Location-based

% change from previous year

10.1

Direction of change

Increased

Reason for change

Additional non-manufacturing locations (global office buildings) added to the gross scope 1 + scope 2 totals in 2019 with a 10% decrease in global production. Additional non-manufacturing locations accounted for an increase of 4.3% in the gross scope 1 and 2 emissions. The 2018 intensity figure was 0.79 with gross total emissions of 4707631 and total production of 5962289. This resulted in a 10.1% increase in emissions per vehicle produced ((0.79-0.87/0.79)). A 10% decrease in production was partially off-set by energy improvement projects for lighting and process optimization at manufacturing locations.

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	1,449,958	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	825	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	1,164	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
North America	1,073,944
Europe	243,069
Asia, Australasia	67,094
South America	41,169
Africa and Middle East	26,671

C7.3

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

By activity

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Manufacturing Operations	1,159,428
Non-Manufacturing Operations	292,519

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

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

	Gross Scope 1 emissions, metric tons CO2e	Comment
Transport OEM activities	1,159,428	

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
North America	2,197,388	2,197,388	4,442,272	0
Europe	520,332	392,810	1,685,591	293,545
Asia, Australasia	336,859	336,859	596,347	0
South America	45,397	45,397	262,832	0
Africa and Middle East	95,727	95,727	105,524	0

C7.6

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

By activity

C7.6c

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

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Manufacturing Operations	2,476,873	2,379,655
Non-manufacturing Operations	718,831	688,527

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

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Transport OEM activities	2,476,873	2,460,220	

C-TO7.8

(C-TO7.8) Provide primary intensity metrics that are appropriate to your indirect emissions in Scope 3 Category 11: Use of sold products from transport.

Activity

Light Duty Vehicles (LDV)

Emissions intensity figure

0.00012

Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e

134,759,224

Metric denominator

p.km

Metric denominator: Unit total

1,167,607,053,000

% change from previous year

6

Vehicle unit sales in reporting year

4,661,106

Vehicle lifetime in years

10

Annual distance in km or miles (unit specified by column 4)

15,000

Load factor

1.67

Please explain the changes, and relevant standards/methodologies used

The increase in tCO2eq/p.km from 2018 to 2019 is primarily due to lower total passenger-km in the denominator (-5.5%) because of decreased sales. Total emissions (in the numerator) were essentially flat (+0.2%), because decreased sales (-5.5%) offset higher CO2-intensity (+6%) of the vehicles. The load factor of 1.67 passengers per vehicle is based on passenger vehicle occupancy factors in the U.S. published in the 2017 U.S. National Household Transportation Survey (https://nhts.ornl.gov/). We use the same occupancy factors for all regions of the world. Little data is available. European data from 20 years ago (https://www.eea.europa.eu/publications/ENVISSUENo12/page029.html) is consistent with the 2017 U.S. factors. We calculate the numerator, total lifetime use of sold products, following the GHG Protocol as described in question C6.5 and summarized here: 2019 sales and gCO2/km emissions data for cars and light commercial vehicles was collected for US, EU, China, Canada, Mexico, Brazil, Australia and India. These regions represent about 87% of all vehicles sold in 2019. The fleet average sales-weighted gCO2/km was calculated. Assuming 150,000 km lifetime, the total CO2 emissions of the 2019 fleet were calculated.

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	115,799	Decreased	2.5	In 2019, 115799 tCO2e emissions were reduced through increased use of renewable energy in our European operations. The total European market-based Scope 2 emissions in 2018 were 508609 tCO2e and in 2019 were 392810 tCO2e. Total decrease was 508609 – 392810 = 115799 tCO2e. Total gross S1 and S2 emissions in 2018 were 4648208 tCO2e. Therefore, we arrived at 0.4% through (115799/4648208)*100 = 2.5%.
Other emissions reduction activities	253,885	Decreased	5.5	In 2019, 253885 tCO2e emissions were reduced through our energy efficiency and emission reduction projects globally. Our total S1 and S2 emissions in 2019 were 3636301 for manufacturing and in 2018 were 3890186. Total decrease was 3636301 – 3890186 = 253885. Total gross S1 and S2 emissions in 2018 were 4577540 tCO2e. Therefore we arrived at 5.5% through (253885/4577540)*100 = 5.5%.
Divestment				
Acquisitions				
Mergers				
Change in output				
Change in methodology				
Change in boundary	194,271	Increased		In 2019, 194271 tCO2e were increased for a change in boundary activities by adding more non-manufacturing building locations in the inventory through improved data base records. Total non-manufacturing S1+S2 emissions in 2018 were 486183 tCO2e and in 2019 were 670454 tCO2e. Therefore, the increase was calculated as 680454 – 486183 = 194271 tCO2e. Total gross S1 and S2 emissions in 2018 were 4577540 tCO2e. Therefore we arrived at 4.2% through (194272/4577540)*100 = 4.2%.

Change in physical operating conditions				
Unidentified				
Other				

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	2,811	7,943,477	7,946,288
Consumption of purchased or acquired electricity		1,505,753	4,951,083	6,456,837
Consumption of purchased or acquired steam		0	635,730	635,730
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		1,508,564	13,530,290	15,038,855

C8.2b

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

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

C8.2c

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

Fuels (excluding feedstocks)
Anthracite Coal

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
41,500

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
41,500

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Emission factor
2,867.77

Unit
kg CO2 per metric ton

Emissions factor source
United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)
Biodiesel

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
6

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
6

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

2.5

Unit

kg CO2 per liter

Emissions factor source

United States EPA GHG Inventory

Comment

Fuels (excluding feedstocks)

Bioethanol

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

2,805

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

2,805

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

5.75

Unit

kg CO2 per liter

Emissions factor source

States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)
Coke Oven Gas

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
80,725

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
80,725

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-cogeneration or self-trigeneration
0

Emission factor
387.61

Unit
kg CO2 per MWh

Emissions factor source
United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)
Diesel

Heating value
HHV (higher heating value)

Total fuel MWh consumed by the organization
19,187

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
19,187

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

2.7

Unit

kg CO2 per liter

Emissions factor source

United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

107,728

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

107,728

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

1.5

Unit

kg CO2 per liter

Emissions factor source

United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

27,363

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

27,363

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

2.32

Unit

kg CO2 per liter

Emissions factor source

United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

7,662,512

MWh fuel consumed for self-generation of electricity

173,363

MWh fuel consumed for self-generation of heat

147,680

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

321,043

Emission factor

1.92

Unit

kg CO2 per m3

Emissions factor source

United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)

Propane Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

1,731

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1,731

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

62.87

Unit

kg CO2 per million Btu

Emissions factor source

United States EPA GHG Inventory Database

Comment

Fuels (excluding feedstocks)

Residual Fuel Oil

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

1,948

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1,948

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

2.98

Unit

kg CO2 per liter

Emissions factor source

United States EPA GHG Inventory Database

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	128,417	128,417	0	0
Heat	111,723	111,723	0	0
Steam	111,813	111,813	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 emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Unbundled energy attribute certificates, Guarantees of Origin

Low-carbon technology type

Wind

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

United Kingdom of Great Britain and Northern Ireland

MWh consumed accounted for at a zero emission factor

268,513

Comment

Starting on October 1, 2019, Ford receives energy sourced with a with a zero carbon emission factor for our operating facilities in the United Kingdom

C-TO8.5

(C-TO8.5) Provide any efficiency metrics that are appropriate for your organization's transport products and/or services.

Activity

Light Duty Vehicles (LDV)

Metric figure

0.00019

Metric numerator

tCO2

Metric denominator

Use phase: Vehicle.km

Metric numerator: Unit total

134,759,224

Metric denominator: Unit total

699,165,900,000

% change from previous year

6.1

Please explain

The kgCO2/km of the global Ford fleet (LDV + Medium/Heavy Duty) increased from 2018 to 2019 primarily due to lower total vehicle-km in the denominator (-5.5%) because of decreased sales. Total emissions (in the numerator, Scope 3 lifetime Use of Sold Products) were essentially flat (+0.2%), because decreased sales (-5.5%) offset higher CO2-intensity (+6%) of the vehicles. We calculate the numerator, total lifetime use of sold products, following the GHG Protocol as described in question C6.5 and summarized here: 2019 sales and gCO2/km emissions data for cars and light commercial vehicles was collected for US, EU, China, Canada, Mexico, Brazil, Australia and India. These regions represent about 87% of all vehicles sold in 2019. The fleet average sales-weighted gCO2/km was calculated. Assuming 150,000 km lifetime, the total CO2 emissions of the 2019 fleet were calculated. The denominator is 2019 sales multiplied by 150,000 km lifetime travel.

Activity

Light Duty Vehicles (LDV)

Metric figure

0.68

Metric numerator

tCO2e

Metric denominator

Production: Vehicle

Metric numerator: Unit total

3,636,301

Metric denominator: Unit total

5,351,771

% change from previous year

4.6

Please explain

The Ford global average manufacturing tCO2e/vehicle produced increased by 4.6% from 2018 (0.66 t/veh) to 2019. The numerator, absolute Scope 1+Scope 2 (location-based) emissions from manufacturing locations decreased by 8.3%. But the denominator, vehicle production, decreased by 10.2%, causing the manufacturing intensity to increase by 4.6%.

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

4.3

Metric numerator

kilograms

Metric denominator (intensity metric only)

vehicle produced

% change from previous year

34

Direction of change

Increased

Please explain

This figure is waste sent to landfill from global manufacturing operations, divided by global vehicles produced. Ford recognizes that landfills generate greenhouse gas emissions, and reduction in waste sent to landfill will reduce greenhouse gas emissions. Ford currently has 54 manufacturing plants that are send zero waste to landfill. This significant increase in year over year waste to landfill was due to the unexpected, permanent closure of a metro Detroit waste to energy facility. Ford remains committed to delivering our ZWTL objectives and has since regained ZWTL status for all of the affected facilities as well as 14 additional non-manufacturing locations in the metro Detroit area.

Description

Other, please specify

Water Usage

Metric value

3.6

Metric numerator

cubic meters

Metric denominator (intensity metric only)
vehicle produced

% change from previous year
3

Direction of change
Decreased

Please explain
Since 2000, we have reduced our operational water use by 70 percent, saving over 11 billion gallons of water. Ford recognizes that climate change can exacerbate water scarcity.

Description
Waste

Metric value
27.2

Metric numerator
Million Kilograms

Metric denominator (intensity metric only)
None

% change from previous year
37

Direction of change
Increased

Please explain
This figure is waste sent to landfill from global manufacturing operations. Ford recognizes that landfills generate greenhouse gas emissions, and reduction in waste sent to landfill will reduce greenhouse gas emissions. Ford currently has 54 manufacturing plants that send zero waste to landfill.

Description
Other, please specify
water usage

Metric value
19.4

Metric numerator
Million cubic meters

Metric denominator (intensity metric only)

None

% change from previous year

13

Direction of change

Decreased

Please explain

Since 2000, we have reduced our operational water use by 70%, saving over 11 billion gallons of water. Ford recognizes that climate change can exacerbate water scarcity.

C-TO9.3/C-TS9.3

(C-TO9.3/C-TS9.3) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Vehicle using bio-fuel

Metric figure

291,194

Metric unit

Units

Explanation

Bio-Fuel Vehicles: In the U.S. in 2019, Ford produced 291,194 flexible-fuel vehicles (FFV), representing 11% of U.S. sales. FFVs can use blended gasoline and ethanol up to 85% ethanol by volume (E85). Six FFV models are available in the U.S.: Escape, Explorer, F-150, Transit, Transit Connect, and Taurus.

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Battery electric vehicle (BEV)

Metric figure

9,562

Metric unit

Units

Explanation

BEV: In 2019, 9562 electric vehicles produced by Ford and our joint venture JMC were registered, representing 0.2% of global wholesales

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Plug-in hybrid vehicle (PHEV)

Metric figure

9,085

Metric unit

Units

Explanation

In 2019, 9085 PHEVs produced by Ford were registered, representing 0.2% of global wholesales. PHEV models available include Fusion Energi.

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Conventional hybrid

Metric figure

61,223

Metric unit

Units

Explanation

In 2019, 61223 HEVs produced by Ford were registered, representing 1% of global wholesales. HEV models available include Fusion Hybrid and Lincoln MKZ Hybrid.

Activity

Light Duty Vehicles (LDV)

Metric

Production

Technology

Other, please specify

Vehicle using LPG/CNG

Metric figure

4

Metric unit

Other, please specify

Models

Explanation

LPG/CNG: In the U.S. in 2019, Ford produced versions of the F-150, F-250, F-350, and Transit Connect equipped with a Gaseous Engine Prep Package. These vehicles are ready for conversion to CNG or LPG by a network of Ford-endorsed Qualified Vehicle Modifier partners.

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

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

	Investment in low-carbon R&D	Comment
Row 1	Yes	Ford has significant R&D efforts in many low-carbon technologies, products, and services. Key areas of research include vehicle electrification, batteries, hydrogen fuel cells, lightweight materials, sustainable materials, and mobility. Ford announced in 2018 that we are investing over $11.5 billion for the development of electrified vehicle solutions by 2022, or about $2 billion per year. In 2018, we also announced plans to invest to invest $4 billion through 2023 in Ford Autonomous Vehicles LLC, about $0.8 billion per year.

C-TO9.6a/C-TS9.6a

(C-TO9.6a/C-TS9.6a) Provide details of your organization's investments in low-carbon R&D for transport-related activities over the last three years.

Activity

Light Duty Vehicles (LDV)

Technology area

Unable to disaggregate by technology area

Stage of development in the reporting year

Average % of total R&D investment over the last 3 years

R&D investment figure in the reporting year (optional)

9,000,000,000

Comment

While we are unable to disaggregate our R&D investment by technology area, we have significant low-carbon investment including electrification. Our Average % of total R&D investment is N/A as we are unable to disaggregate.
Electrification is a key part of our sustainability strategy with significant ongoing investment in R&D and engineering. The Climate Bonds Taxonomy (CBT) is used to determine if our electrified vehicles can be classified as low-carbon transport. From Table 2 of the CBT document "Low Carbon Land Transport and the Climate Bonds Standard, v. 1", to be classified as low-carbon, passenger vehicle direct emissions must achieve 85 gCO2e/pkm in 2016 and 77 gCO2e/p-km in 2019 (interpolated). The 2019 Fusion Energi (PHEV) is rated at 99 gCO2/mile by the US EPA which converts to 37 gCO2e/p-km, assuming a passenger load factor of 1.67, satisfying the low-carbon classification criterion. The current Fusion Hybrid, introduced in 2016, is rated 212 gCO2/mile, or 79 gCO2e/p-km (load-factor=1.67), meeting the 2016 target of 84.6 gCO2e/pkm and nearly meeting the 2019 target.
Ford's Engineering, Research and Development expenses were $7.4 billion in 2019. We have announced investments of over $11.5 billion in electrified vehicle (EV) solutions by 2022, about $2 billion/year.

Activity

Light Duty Vehicles (LDV)

Technology area

Unable to disaggregate by technology area

Stage of development in the reporting year

Average % of total R&D investment over the last 3 years

R&D investment figure in the reporting year (optional)

7,400,000,000

Comment

While we are unable to disaggregate our R&D investment by technology area, we have significant low-carbon investment including materials.
Our sustainable materials strategy encompasses renewable or recycled materials, sourcing, processing energy reduction, life cycle emissions and end-of-life disposal. Through our research, we have discovered new, robust natural-fiber-reinforced materials that improve fuel economy because they are lighter in weight. These plant-based materials also sequester carbon, reducing global warming impacts, and require less energy to process. Many of them are waste products from other industries, helping us to achieve circular economy goals. We were the first automotive company to launch soy-based foam in 2007 and since then, we have introduced new composites using castor oil, kenaf, wheat straw, rice hulls, coconut and tree fibers into our vehicles, adding up to around 300 parts. Through a new research partnership with McDonald's USA, we will be using coffee chaff–the dried skin of the coffee bean–as an industry first in vehicles. Components made from coffee chaff will be about 20 percent lighter and require up to 25 percent less energy to mold than the traditional material. Working alongside different companies, including McDonald's, we will continue exchanging and utilizing materials that otherwise would be waste or by products.
By using recycled materials, we are keeping waste out of landfill, as well as using fewer natural resources and less energy. In 2019 we launched two new sustainable materials applications. We created the first injection-molded carbon canister, an under-hood emission control component, made from 100% post-consumer recycled carpet backing. Replacing fossil feedstock, the recycled resin reduces cost by 25 percent, with no impact on processing or performance, and is better for our planet. It is currently being used on more than 20 Ford programs globally. We also launched a new material on an extension dash panel (a semi-structural plastic panel just under the windshield wipers), which is also made from recycled carpet backing and recycled tire rubber. This application has given a new lease of life to around 11.9 million square feet of carpet and 26,250 pounds of tire rubber – two materials that have significant environmental challenges at end of life. Ford's RD&E expenses were $7.4 billion in 2019.

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

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

Ford EY18 CDP Letter2.pdf

Page/ section reference

1

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

Ford EY18 CDP Letter2.pdf

Page/ section reference

1

Relevant standard

ISO14064-3

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: Use of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance

Limited assurance

Attach the statement

Ford EY18 CDP Letter2.pdf

Page/section reference

1

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Progress against emissions reduction target	ISO14064-3	Our carbon reduction strategy target disclosed in C4.1 has 2 components. Our near-term target is to reduce Scope1+2 emissions by 16% between 2017 and 2023 and by 75% by 2035. It is important that we carefully track and disclose our progress against the targets. We already annually verify 100% of our Scope 1 and Scope 2 emissions (C10.1a-b) so we are also verifying our progress toward our targets. ABSOLUTE TARGET 1 is a 16.2% reduction in Scope 1+Scope 2(location-based) between 2017 and 2023. The 2017 base year emissions are 4,168,442 t CO2e. 16.2% of 4,168,442 is 675,287.6 tCO2e reduction required by 2023. In 2019 our S1+S2(loc) emissions are 3,636,301 t CO2e, which is 4,168,442-3,636,301=532,141 t CO2e lower than 2017. We have reduced 532,141 t out of the 675,287.6 t needed to meet the reduction target. 532,141 /675,287.6=0.788=78.8% of the reduction target has been achieved. ABSOLUTE TARGET 2 is a 75% reduction in Scope 1+Scope 2(location-based) between 2017 and 2035. The 2017 base year emissions are 4,168,442 t CO2e. 75% of 4,168,442 is 3,126,332 tCO2e reduction required by 2035. In 2019 our S1+S2(loc) emissions are 3,636,301 t CO2e, which is 4,168,442-3,636,301=532,141 t CO2e

			lower than 2017. We have reduced 532,141 t out of the 3,126,332 t needed to meet the reduction target. 532,141/3,126,332 = 0.17=17% of the reduction target has been achieved. 2019 data has been submitted and verification is in progress but will not be ready in time for CDP submission.
C6. Emissions data	Year on year change in emissions (Scope 1)	ISO14064-3	Our carbon reduction strategy target disclosed in C4.1 includes both scope 1 and scope 2 emissions. By verifying the change in scope 1 emissions reported in C6.1 here, we provide increased transparency of how much progress we are making on each scope. We already annually verify 100% of our Scope 1 and Scope 2 emissions so it is an additional benefit to provide verification of our annual change in Scope 1 emissions. In 2018 we emitted 1442963 t CO2e. In 2019 we emitted 1451947 t CO2e. The change in our Scope 1 emissions from 2018 to 2019 is an increase of 0.6%: [(1451947/1442963)-1=0.006] 2019 data has been submitted and verification is in progress but will not be ready in time for CDP submission.
C6. Emissions data	Year on year change in emissions (Scope 2)	ISO14064-3	Our carbon reduction strategy target disclosed in C4.1 includes both scope 1 and scope 2 emissions. By verifying the change in scope 2 emissions reported in C6.3 here, we provide increased transparency of how much progress we are making on each scope. We already annually verify 100% of our Scope 1 and Scope 2 emissions so it is an additional benefit to provide verification of our annual change in Scope 2 emissions. S2 location-based: In 2018 we emitted 3349808 t CO2e. In 2019 we emitted 3195704 t CO2e. The change in our Scope 2 location-based emissions from 2018 to 2019 is a decrease of 4.6%: [(3195704/3349808)-1=-0.046] S2 market-based: In 2018 we emitted 3219716 t CO2e. In 2019 we emitted 3068182 t CO2e. The change in our Scope 2 market-based emissions from 2018 to 2019 is a decrease of 4.7%: [(3068182/ 3219716)-1=-0.047] 2019 data has been submitted and verification is in

			progress but will not be ready in time for CDP submission.
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	ISO14064-3	Our carbon reduction strategy target disclosed in C4.1 includes both scope 1 and scope 2 emissions. By verifying the change in scope 1 and scope 2 emissions reported in C6.1 and C6.3 here, we provide increased transparency of how much progress we are making on each scope individually and collectively. We already annually verify 100% of our Scope 1 and Scope 2 emissions so it is an additional benefit to provide verification of our annual change in Scope 1+2 emissions. Our combined Scope 1 (C6.1)+Scope 2 (C6.3) emissions decreased 3% from 2018 to 2019 for both location-based and market-based scope 2 emissions. LOCATION BASED: 2018 S1+S2(location)= 1442963+3349808=4792771; 2019 S1+S2(location)= 1451947+3195704=4647651. The change in S1+S2(location)= [(4647651/4792771)-1]=-0.0030=-3.0% MARKET BASED: 2018 S1+S2(location)= 1442963+ 3219716= 4662679; 2019 S1+S2(location)= 1451947+ 3068182= 4520129. The change in S1+S2(location)= [(4520129/4662679)-1]=-0.0031=-3.1% 2019 data has been submitted and verification is in progress but will not be ready in time for CDP submission.

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

Other ETS, please specify

Carbon Reduction Commitment

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

11.7

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

110,184

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

135,768

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Other ETS, please specify

% of Scope 1 emissions covered by the ETS

33.3

% of Scope 2 emissions covered by the ETS

66.7

Period start date

April 1, 2018

Period end date

March 31, 2019

Allowances allocated

0

Allowances purchased

11,218

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

The Carbon Reduction Commitment Scheme was wound up on April 1, 2019. % of Scope 1 and 2 emissions are based upon CRC emission.

C11.1d

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

Ford's strategy to comply with the emissions trading systems is first to reduce emissions and where that is not possible we purchase emissions allowances where necessary.
Ford has a dedicated regulatory compliance team which ensures that all compliance obligations from emissions trading schemes are met by the company. The team monitors regulatory developments, establishes procedures, carries out data review and internal audits. Monthly CO2 emissions are tracked in the Global Emissions Monitoring Database, which the compliance team uses to assesses emissions liability and to determine the need to purchase emissions allowances. At the same time, Ford has established a Carbon Emissions reduction strategy, which aims to reduce the stationary emissions made by the company through energy efficiency actions and renewable energy projects. A cross functional team of environmental and energy efficiency experts implement the strategy.
Case study: Decentralised heating in Bridgend. The heating system in the factory was changed from a centralised boiler house to decentralised direct fired heating units. The centralised boiler house generated High Pressure Hot Water (HPHW) which was pumped around the 155,000m2 site where 131 roof mounted Air Handling Units pumped air into the building via the HPHW Coils in each unit. There were 393 extract fans permanently on. These systems were replaced with 460 radiant heaters and variable speed air extraction and intake fan units. The smaller units deliver heat more efficiently and can be operated more flexibly, for example they can be shut off when areas are not used. Heat stratification in the building is reduced. The installation of the units reduced the CO2 emissions from gas consumption in the facility in 2019 by 27% compared to the previous year. The number of allowances we needed to surrender for the site was hence reduced significantly.

C11.2

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

No

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Navigate GHG regulations
Change internal behavior

GHG Scope

Scope 1

Application

Various Ford sites in Europe are part of the EU Emissions Trading scheme, a cap and trade system where emissions need to be compensated with emissions allowances. Ford has established an internal trading system around this. Allowances are managed centrally and are traded internally between facilities. The internal price mirrors the fair market value of the emissions allowances (EUA).
In additions, when evaluating energy efficiency actions, potential savings in the cost of carbon are part of the project evaluation.

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

20

Variance of price(s) used

Current fair market value of EUAs. Dependent on market fluctuations. Price is in Euro/metric ton

Type of internal carbon price

Shadow price

Impact & implication

By including carbon pricing in project investment evaluation, low carbon projects are favoured. Reduction in scope 1 emissions directly translates into lower costs for emissions allowances.

One of the visible effects is that Ford has achieved our 2010-2025 global CO2 reduction target in 2017, 8 years early.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, other partners in the value chain

C12.1a

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

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

2

% total procurement spend (direct and indirect)

64

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

19

Rationale for the coverage of your engagement

We have more than 1200 production suppliers and 10,000 indirect suppliers with an annual spend of more than $120 billion (USD). While we engage with only 2% of the total number of suppliers, they represent 64% of our spend and 66% of our spend in the purchased goods and services category of our Scope 3 emissions. Therefore, this group of suppliers represent the greatest opportunity to reduce our collective footprint.

Impact of engagement, including measures of success

Ford's measure of success for this engagement activity is a target of 80% response rate to the CDP supply chain questionnaire and in 2019, 83% of suppliers responded, exceeding our internal goal. The impact of the engagement is measured by comparing year-over- year performance on key indicators. For example, the % of responding suppliers who have reported setting an emissions reduction target increased from 66% in 2017 to 73% in 2018 and 2019; and suppliers reporting intensity targets also

increased from 53% to 54%. Out of responding suppliers, 80% had active emissions reduction initiatives within the reporting year.

Comment

Ford intends to establish targets and metrics for select suppliers starting in early 2021.

C12.1d

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

The Ford Go Green Dealership Program was developed and offered to dealerships throughout the United States. Over 1600 dealerships participated representing approximately 50% of the total dealership body. Detailed assessments were prepared for each participating dealership identifying specific utility upgrades that, if implemented, would result in energy savings for the dealership. An average dealership can save $35,000 in energy cost by implementing the recommendations of the assessment. This also results in a carbon footprint reduction of 210 metric tons of carbon dioxide per year for the average dealership. In 2018 at least 20% of dealership have implemented significant portions of the recommendations. The total annual carbon footprint reduction calculates to be 40,000 metric tons for the energy improvements made by dealership through this date. As more dealership implement similar improvements, the annual carbon footprint reduction could ultimately grow to 100,000 metric tons per year if 50% of these dealerships make upgrades. Dealerships have a small footprint relative to other categories but there are 3,263 dealership within the United States, which increases the significance. We have completed the assessments performed as part of the “Go Green” Dealer Sustainability Program we launched in 2010. The program addressed efficiency improvements and cost savings at dealerships in the areas of lighting, HVAC, building envelope, water use and renewable energy applications. Each participating dealership received a Go Green Assessment identifying opportunities to increase their utility efficiencies, lower their energy costs and reduce their carbon footprints.

C12.3

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

Direct engagement with policy makers

Trade associations

Funding research organizations

C12.3a

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

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Carbon tax	Support with minor exceptions	Ford will continue to engage constructively with the Ontario government (MOECP, MEDEI,	Legislation is final. Ongoing efforts relate to minimizing the impact of cap and trade program on all

		MOF, etc.) on climate change through the Canadian Vehicle Manufacturers Association (CVMA).	operations – vehicle assembly and components as well as the supply chain by recognizing that automotive manufacturing and its associated supply chain is trade sensitive and has access to cap and trade revenue for GHG improvements.
Energy efficiency	Support	Ford is a member of a governor's focus group developing and supporting energy efficiency programs in Michigan.	Regulated utility requirement to meet energy efficiency targets.
Other, please specify Greenhouse Gas	Support with minor exceptions	Ford engages on a variety of issues related to CO2 and climate change globally. One example is our work with NHTSA and EPA in the development and promulgation of aggressive U.S. light and heavy duty fuel economy and GHG standards. The existing light duty standards put automobile manufacturers on path to reduce vehicle GHG emissions by approximately 50 percent over the life of the program. The current program is under evaluation, but Ford remains committed to achieving CO2 reductions according to our CO2 glidepath. The heavy duty standards save approximately 530 million barrels of oil over the life of the program.	Ford continues to work with global policy makers on CO2 regulations. We have reiterated our commitment to continuing to make greenhouse gas reductions despite flux in the system. For example, Ford has signed onto a Voluntary Framework Agreement with California to meet GHG standards beyond the minimum requirement proposed by the federal government's SAFE (Safer Affordable Fuel Efficient) Rule.

C12.3b

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

Yes

C12.3c

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

Trade association

Ford works with a broad range of industry and trade organizations to encourage debate and provide insight and background on a variety of issues related to CO2 and climate change, including alternative fuels, alternative fuel vehicles, transportation policy, emissions regulations, research and development initiatives and tax policy. One organization that we interface with corporate wide is the Alliance of Automobile Manufacturers. We also work globally with organizations like Engine Manufacturers.

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

In the U.S., we engage with the Alliance of Automobile Manufacturers, an advocacy group for the auto industry, represented by the BMW Group, Fiat Chrysler Automobiles, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Cars North America. The Alliance develops and implements solutions to public policy challenges that promote sustainable mobility and benefit society in the areas of environment, energy and motor vehicle safety. ACEA is the European Automobile Manufacturers Association representing manufacturers of passenger cars, vans, trucks and buses with production sites in the EU. ACEA members include BMW, DAF, Daimler, FCA, Ford, Hyundia, IVECO, Jaguar & Land Rover, GM, PSA, Renault, Toyota, Volkswagen, Volvo Cars and Volvo. ACEA also plays an active role in China to engage in the communication with Chinese authorities and other stakeholders to protect the common interests and positions of industry by using their expert knowledge and resources from members. The Alliance of Automobile Manufacturers and ACEA are just two examples. There are many other associations we work with on a global basis to develop industry solutions to public policy challenges. Of course, we don't always agree with every position taken by these organizations; in such cases, we always reserve the right to speak with our own voice and make our own stance clear, even if our views don't align with the positions of the associations to which we belong.

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

We continue to actively engage and encourage debate on a wide range of issues within these groups.

C12.3d

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

No

C12.3f

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

Ford seeks to be an active participant in the political process in a manner that is transparent and supports our business interests. Across a range of issues, we strive to be part of the solution, supporting international, national, regional and local policies that are economically, environmentally and socially sustainable for our company, our customers and their communities. On issues of the highest priority, including issues related to climate change, we maintain regular dialogue with legislators and regulatory officials in our major markets, sharing our expertise and adding our perspective to the policy-making process. Our Government Affairs offices around the world oversee these lobbying activities. We belong to a broad range of partnerships, coalitions, industry groups and trade associations that advocate for legislation and regulation on behalf of their members. Ford's participation in the industry associations is cross-functional, including Government Affairs, Legal staff, Public Affairs and the Sustainability, Environment and Safety Engineering team. This assures a consistent internal and external policy and messaging that is aligned with our overall climate change strategy. Working with others through such organizations enables us to better leverage our resources on important issues, and to develop and promote policies that could have far-reaching benefits for our company, but also our industry and society as a whole. Of course, we don't always agree with every position taken by these organizations; in such cases, we always reserve the right to speak with our own voice and make our own stance clear, even if our views don't align with the positions of the associations to which we belong. Deciding when to speak out does not follow a process. Instead, it is done on a case-by-case basis based on the issue at hand. For example, when commenting on proposed regulations, Ford may submit comments separate from our industry association if Ford identifies that an aspect of our stance that is different than other automakers in the industry association. Ford will also occasionally make public statements when we feel strongly about certain issues. An example of Ford speaking out is Ford's "What Sustainability Means to Us" video, which reiterated our commitment to do our part to go further for the planet, despite threats of the U.S. pulling out of the Paris Climate Change Agreement and rolling back fuel economy standards:

Per Bill Ford in this video: "Our Sustainability Report owns up to what we are doing well and what we are not doing well. We had the largest brownfield manufacturing site in the world, and now at the Rouge, we've set very tough water usage targets for ourselves. We do not use drinking water for any of our production processes."

Bill Ford's great grandfather felt nothing should be wasted. This is still a priority today, we have 102 facilities around the world that are true zero waste to landfill. We recycle 20 million pounds of aluminum per month. We were the first automaker to develop soy-foam seats, which reduces 20 million pounds of CO2 emissions per year.

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
Ford 2020 10k-2019-q4.pdf

Page/Section reference
Includes Strategy, Governance, Risks and Opportunities, pages 6-38
https://s23.q4cdn.com/799033206/files/doc_financials/annual/10k-2019-q4.pdf

Content elements
Governance
Strategy
Risks & opportunities

Comment

Publication
In mainstream reports

Status
Complete

Attach the document
Ford-2019-Printed-Annual-Report.pdf

Page/Section reference
Includes Strategy, Governance, Risks and Opportunities, Targets and Reporting, Mobility, pages 6, 7, 12, 24, 38
https://s23.q4cdn.com/725981074/files/doc_downloads/Ford-2019-Printed-Annual-Report.pdf

https://annualreport.ford.com/Y2019/default.aspx

Content elements

Governance
Strategy
Risks & opportunities

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Ford Sustainability Report 2019-2020.pdf

Page/Section reference

Includes Strategy, Governance, Risks and Opportunities, Targets, Performance and Reporting
https://corporate.ford.com/microsites/sustainability-report-2020/assets/files/sr20.pdf

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics
Other, please specify

The sustainability report contains SASB Index, TCFD, Global Reporting Initiatives (GRI), and performance data.

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

Ford sr20-proxy-statement.pdf

Page/Section reference

2020 Proxy Statements includes Governance, Strategy, Risks and Opportunities
https://corporate.ford.com/microsites/sustainability-report-2020/assets/files/sr20-proxy-statement.pdf

Content elements

Governance
Strategy
Risks & opportunities
Other metrics

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

Ford sr20-climate-change-scenario-2020.pdf

Page/Section reference

Includes Climate Change Strategy, Products, Services and Experiences, Operations, Public Policy, Climate Change Scenario
Planning, Business Strategy for a Changing World

https://corporate.ford.com/microsites/sustainability-report-2020/assets/files/sr20-climate-change-scenario-2020.pdf

Content elements

Strategy
Risks & opportunities
Other, please specify
Climate Change Strategy, Operations, Policy, Climate Change Scenario Planning, Business Strategy

Comment

In conjunction with our annual sustainability report, this Climate Change Scenario Report is intended to provide stakeholders with our perspective on the risks and opportunities around climate change and our transition to a low-carbon economy. It addresses details of Ford's vision of the low-carbon future, as well as strategies that will be important in managing climate risk. This is Ford's second climate change scenario report. In this report we use the scenarios previously developed, while further discussing how we use scenario analysis and its relation to our carbon reduction goals. One of the four scenarios described in our report, 'Too Little, Too Late', describes a scenario involving systemic risk as well as our response to it. Based on stakeholder feedback, we have also included physical risk analysis,

Publication

In mainstream reports

Status

Complete

Attach the document

Ford 2019 climate response.pdf

Page/Section reference

All pages and sections

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other, please specify

Comment

Includes Climate Change Strategy, Products, Services and Experiences, Operations, Public Policy, Climate Change Scenario
Planning, Business Strategy for a Changing World
https://corporate.ford.com/microsites/sustainability-report-2018-19/assets/files/sr18-climate-change-scenario-2019.pdf

C15. 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.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	COO, Jim Farley oversees new business, technology and strategy and reports to Jim Hackett, CEO	Chief Operating Officer (COO)