

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 61 plants and about 196,000 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”). 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 Accord. 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 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, Responsible Consumption and Production, and Climate Action.

Our Aspirational Goals include 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, supporting CO2 reductions consistent with the Paris Climate Accord, 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. Our future is already in motion – we are moving people more efficiently and sustainably. 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	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2018	December 31 2018	No	<Not Applicable>

C0.3

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

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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas 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 9 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

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 three 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 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).

The highest ranking Company Officer directly responsible for climate related issues is the Chief Sustainability Officer (CSO) who is also the Vice President of Sustainability, Environment and Safety Engineering (SE&SE VP). 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 chairs the Board of Directors Sustainability and Innovation Committee and coordinates 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 the Creating Value Roadmap (CVR) process.

Topics are requested by the Board or recommended through various corporate forums as mentioned below. The SE&SE VP also oversees the Sustainability & Vehicle Environmental Matters (SVEM) group, the Environmental Quality Office (EQO), the Vehicle Homologation & Compliance (VHC) group 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, SVEM 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 Accord 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 Creating Value Roadmap 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. Fully integrated into how we run the business, 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. The CVR process is institutionalized as Policy Letter 25. This helps to ensure we implement 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:

- Business Plan Review (BPR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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
- Special Attention Review (SAR): The SAR 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, Quality and Productivity Meeting, and Executive Personnel Committee, 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 Executive Vice President, Product Development and Purchasing 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?

Yes

C1.3a

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

Who is entitled to benefit from these incentives?

Corporate executive team

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

Many executives 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.

Who is entitled to benefit from these incentives?

Facilities manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

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.

Who is entitled to benefit from these incentives?

Business unit manager

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

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.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

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 2018 participants, including executive officers, under the Company's shareholder-approved Annual Incentive Compensation Plan. The Corporate performance criteria and weightings used for 2018 under the plan include those relating to climate change.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Recognition (non-monetary)

Activity incentivized

Efficiency target

Comment

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

C2.2

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

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

C2.2a

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

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	We monitor progress against objectives throughout the year, primarily using the monthly Business Plan Review (BPR) and Special Attention Review (SAR) and other Executive Forums as required. This allows us to respond to identify and assess climate-related risks in a timely manner and adjust our management approaches where necessary. The Global Sustainability Meeting (GSM), a multidisciplinary senior-level team, oversees actions in response to climate change and sustainable mobility strategies. The GSM meets monthly to identify risks, provide strategic direction and governance for compliance, approve policies and strategies, and govern each skill teams' 5-year sustainability plans that enable sustainability "Leadership". Additional, as part of our global ISO 14001 certified Environmental Management System, we are monitoring all climate change related performance indicators (e.g. GHG emissions, power supply related emissions and VOCs) on a monthly base.

C2.2b

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

The Creating Value Roadmap (CVR) 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 is institutionalized as Policy Letter 25 which ensures we implement sustainability-related risk assessments, planning, strategy implementation and performance reviews consistently across the organization. We monitor progress against objectives throughout the year (six-monthly or more frequently), using the:

1) Business Plan Review (BPR): The senior leadership team (representing all skill teams and business units) hold monthly BPR 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. Sustainability topics may include pending fuel economy regulations, our CO2 glide path to meet Paris Climate Accord, greenhouse gas or electric vehicle mandate regulations, and vehicle sales targets and performance required to meet regulatory requirements.

2) Special Attention Review (SAR): The SAR 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 as the need arises. Examples of SAR topics include the publication of a draft regulatory requirement with significant impact to Ford product, technology or manufacturing plans or a catastrophic event that requires input or coordination from other skill teams or business units.

3) Additional governance forums: Other forums, including the Strategic Programming Meeting, Product Matters Meeting, Quality and Productivity Meeting, and Executive Personnel Committee, enable us to review key elements of our business, make long-term decisions and develop strategic inputs to the Board of Directors. Additional forums such as the Global Sustainability Meeting (GSM) are held monthly to monitor and develop strategies to respond to both internal and external influential events and refer to forums as required for awareness and/or resolution.

In addition to sustainability governance, the CVR 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 resulting from a reduction in revenue. Such a reduction in revenue could be caused by a stop in production/sale of vehicles from labor issues, severe weather events, etc. We consider any production shutdown as well as a regulation that would prohibit the sale of our product to be a substantive financial impact.

Example #1 of identifying and assessing a climate related risk: If electric vehicle sales are falling short of their target it would be flagged as an issue to address at a BPR. A corrective action plan would be reviewed at a SAR and which could conclude that a \$500 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 \$46.6M 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.

Example #2 of identifying and assessing climate related risk: Catastrophic weather event such as a hurricane, tornado, tsunami, or fire 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 special attention and a recovery plan was formulated and implemented to restore production as quickly as possible by manufacturing parts at alternative facilities. We consider this production shutdown to be a substantive financial impact.

C2.2c

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

	Relevance & inclusion	Please explain
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	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. To enable continued regulatory compliance, Ford has committed more than \$11 billion in electrified vehicle investment from 2017 to 2022. These regulated items have vehicle specific targets that are monitored and managed through our BPR (Business Planning Review) process. When a climate related current regulatory 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. Examples utilizing this process are: 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) was implemented in 31 countries and valid for large emitting facilities until 2013. It focusses on emissions that can be measured, reported and verified. After assessments, our EU boiler houses in Dagenham, Cologne and Saarlouis; our paint shop in Cologne; and heating equipment in Saarlouis were affected, so we established very accurate emission measurement and a robust reporting procedure.
Emerging regulation	Relevant, always included	In the major markets where Ford conducts business (e.g. North 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 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 of emerging regulatory risk: A possible outcome of the mid-term review process could be that California and other states would have unique greenhouse gas requirements if a compromised solution with the federal government cannot be reached. Such a scenario could increase Ford's costs if separate fleets requiring additional investment are the result. Example #2 of emerging regulatory risk: 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 program 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 Business Planning Review process offers a forum for communicating emerging regulatory risk throughout the company so Ford can ensure new and emerging regulatory requirements are considered in product planning and manufacturing facilities. Strategies to meet emerging requirements are formulated and approved in Special Attention Reviews and Product Planning Meetings.
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, both for our stationary sources and products. As we make further CO2 reductions, it becomes increasingly more challenging to continue making incremental improvements because the technology that is simplest to implement has already been utilized. Further advancements could be more costly for the CO2 improvement gained, and may have a longer payback than some of the technologies adopted early on. Additionally, technology may not be available to make the improvements at the rate required to meet regulatory or internal requirements. Ford has developed a unique portfolio of powertrain options that plays to our strengths, such as SUVs and trucks. Ford minimizes risk by meeting our target customers' needs (e.g. features, cost), while implementing the technological improvements required to maintain compliance. This is relevant because even an issue that is strictly policy-related has technology implications. For instance, Urban Low Emission Zones, which are becoming more common in Europe, limit urban emissions by restricting vehicle access. To minimize customer inconvenience, Ford must make available vehicles that allow for customer mobility despite restrictions (e.g. low emission vehicles, alternative powertrains). The Business Planning Review process offers a forum for communicating emerging technology throughout the company so Ford can ensure new and emerging technology requirements are considered in product planning and in manufacturing facilities.
Legal	Relevant, sometimes included	While we don't currently think there are any significant legal risks (apart from the regulatory risks identified above), we always seek the advice of legal counsel to confirm possible legal implications.
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 2 Degree C glide path CO2 reduction targets aligning with the Paris Climate Accord, technological improvements are needed. For example, we are investing \$11 billion for the development of electrified vehicle solutions by 2022. However, although we have invested heavily, our glide path 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 below 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. Additionally, there is a risk that societal changes could impact how humans move in the future. For example, in large metro areas, vehicle ownership could become less common with increased interest in ride hailing and car-sharing services. These changes could increase or decrease total travel, impacting CO2 emissions from the in-use fleet. To take advantage of this emerging trend, 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. As an alternative we also launched GoBike, a bike sharing service in San Francisco in 2017. As well we started our 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 Accord) 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

	Relevance & inclusion	Please explain
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. As such, they are assessed and managed through our BPR (business planning review) process. In our monthly BPR meetings, metrics on emissions, sales, sustainability and monitoring of news/public relations events occurs. When a climate related reputation item of concern is identified through any of 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 are evaluated, selected, and implemented. Example of reputation risk: An example of how Ford's reputation could be negatively affected is if we launched CO2 reducing technologies that were not well received by our customers effecting sales of the vehicles with those technologies. This could be due to poor product planning on Ford's part, unexpected competitor actions, or factors that are beyond Ford's control. The Focus Battery Electric vehicle is an example. The product was launched in 2011 it had 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 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. Ford also manages technology acceptance risk through a thorough product development process that includes testing, verification, and market research of new technologies to ensure their performance, reliability, and customer acceptance. These actions minimize technology acceptance risk and build Ford's reputation as a trusted company.
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 site in Thailand or the Philippines, actions are taken to ensure continued availability of fuel to minimize production disruptions. Example of acute physical risk: In 2015, our purchasing operations have implemented a Risk Exposure Index (REI) developed by the Ford-MIT Alliance. The REI enabled us to identify the key elements in the supply chain that we should monitor, along with the industry as a whole, for potential disruptions to production due to climate change-induced weather events or other natural or man-made disasters. Our supply risk strategy has evolved further 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. 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 (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. The Business Planning Review process offers a forum for communicating possible acute physical risks and assessing if they are relevant in our CO2 emissions. The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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
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. The Business Planning Review process offers a forum for communicating possible chronic physical risks and assessing if they are relevant in our CO2 emissions. The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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
Upstream	Relevant, sometimes included	We consider the upstream impacts of our products in our CO2 risk assessments as relevant as we work with suppliers to minimize their impacts. We review these impacts via our Business Plan Review (BPR) and Special Attention Review (SAR) processes. The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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. The SAR 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. Some suppliers have manufacturing facilities in water-scarce or severe weather prone locations that may carry a risk for continuity of supply. In addition, some suppliers have manufacturing operations that are energy-intensive. Example of upstream risk: We ask selected suppliers to respond to the CDP climate change questionnaire so that we can better understand our collective environmental footprint and identify "hotspots" for energy use and CO2 emissions. Through the Ford Partnership for a Cleaner Environment (PACE) program, we educate selected suppliers about ways to decrease their water and energy use (and therefore CO2 emissions). We ask suppliers to set water usage and CO2 emissions targets and report reductions to Ford. We monitor their progress and provide technical support as needed. Through the Responsible Business Alliance (RBA), third-party auditors conduct environmental audits at selected supplier sites. We work with these suppliers to address any identified non-conformances. We are also asking some suppliers to respond to a Sustainability Self-Assessment questionnaire, which asks for details about their formal environmental policy including energy consumption.

	Relevance & inclusion	Please explain
Downstream	Relevant, sometimes included	<p>We consider the downstream impacts of our products in our CO2 risk assessments as sometimes relevant via our management meetings. We review these impacts via our Business Plan Review (BPR) and Special Attention Review (SAR) processes. The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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. The SAR 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. Our CO2 glidepath provides a science-based approach to determine the emission reduction levels for 2°C temperature stabilization, in alignment with the Paris Climate Accord, over time, and assumes a certain level of lifetime miles traveled to assess CO2 emissions from the in-use car fleet. Example #1 of downstream risk: We review our product development plans semi-annually (or more often) to ensure our vehicles are aligned with the 2°C stabilization glide path. While our plans are based upon delivering long-term reductions in CO2 emissions from new vehicles that are similar to those for the industry-average LDV glide paths, we anticipate that the reductions will vary from year to year. This is due to market forces that we do not fully control, such as energy price fluctuation, changes in the mix of vehicles demanded by consumers and other factors that influence our product plans. Recognizing the long timeframe of climate science, we update our glide path model's assumptions and input data every five years. Our 2°C temperature stabilization pathway is specific to the LDV sector. We also evaluated an LDV 1.5°C sensitivity scenario. We conduct other sensitivity analyses to understand the effect on the glide paths of global changes, such as economic conditions, biofuel availability or regulations. Example #2 of downstream risk: We also have partnerships with the petroleum industry to encourage improved fuel quality, to minimize climate change impact downstream as a result of customers fueling their vehicles.</p>

C2.2d

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

We manage climate related risks and opportunities through the following reviews and processes:

- Business Plan Review (BPR): The senior leadership team as led by the CEO (representing all skill teams and business units) holds monthly BPR 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
- Special Attention Review (SAR): The SAR 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 as the need arises. Examples of SAR topics include the publication of a draft regulatory requirement with significant impact to Ford product, technology or manufacturing plans or a catastrophic event that requires input or coordination from other skill teams or business units.
- Our financial planning process which 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 and an event with potential Substantive Financial Impact that may have real firm considerable effect falling into one of the following categories that results in a further reduction in revenue: Significant Business disruption such as marketplace downturn, stop in production/sale of vehicles, labor issue and parts availability.

We prioritize risks and opportunities posed by climate change consistent with our materiality analysis, the magnitude of the impact and our ability to control the outcome. Our long-term strategy is to contribute to climate stabilization by continuously reducing our operational greenhouse gas (GHG) emissions and energy usage. Our product plans in all regions are aligned with our overall goal of contributing to climate stabilization in alignment with the Paris Climate Accord. From a physical perspective, we monitor risks and opportunities to our facilities continuously (at least six-monthly or more frequently). Extreme weather has the potential to disrupt the production of natural gas, a fuel we need to manufacture our vehicles.

Example #1 managing risks: In 2015, we used tools to understand the potential business disruption exposure of typhoons hitting the Philippines. In 2015, our purchasing operations implemented a Risk Exposure Index (REI) developed by the Ford-MIT Alliance. The REI enabled us to identify the key elements in the supply chain that we should monitor, along with the industry as a whole, for potential disruptions to production due to climate change-induced weather events or other natural or man-made disasters. We assessed the risk in the Philippines utilizing GDACS (Global Disaster Alert and Coordination System) and HEWS (Humanitarian Early Warning Service) as a part of our monitoring process for potential disruptions related to weather. 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

Example #2 managing risks: During recent hurricane threats on the U.S. East Coast, we reached out to suppliers with facilities in the threatened region to ship Ford inventory ahead of the pending storm. After the event, we reached out again to ensure the safety of our supplier personnel, determine the condition of the manufacturing site and develop plans to re-establish shipment. We encourage our Tier 1 suppliers to work with their sub-tiers to implement similar actions.

Example #3 managing opportunities: Through an opportunity within Ford's new Carbon Reduction Strategy of 100% renewable energy by 2035, Ford committed to a substantial renewable energy procurement through DTE Energy's MIGreenPower program, supporting Ford's Southeast Michigan portfolio and providing 500,000 megawatt hours of locally sourced Michigan wind energy.

Example #4 managing opportunities: As another opportunity, we are involved in the ReNEWW (Retrofitted Net-zero Energy, Water & Waste) House project. This project is transforming an existing home into a world-class research laboratory and sustainable living showcase. We've reviewed progress and status of this project with senior management in the SAR (Special Attention Review). Regular SAR reviews provide approval from senior leadership to continue our company's involvement in this innovative sustainability effort. In addition, the SAR reviews have provided increased internal awareness of Ford's contributions to the ReNEWW House team.

We managed climate related risks and opportunities of the above examples and opportunities through the reviews and processes described as the beginning of this section.

Our connection to other frameworks includes our TCFD Risk Management recommended disclosure.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Mandates on and regulation of existing products and services

Type of financial impact

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

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 Focus BEV, 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.

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)

76000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 net income of over \$76 million, based on 2018 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.

Management method

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. In 2018, Ford met with a number of policymakers, including U.S. EPA, National Highway Transportation Safety Administration, European Ministry state secretaries and California ARB, to discuss the fuel economy and GHG standards mid-term

evaluation, emphasizing capabilities and challenges related to future light-duty compliance. 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 aluminum 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 \$8.2 billion in 2018 and Ford's \$11 billion investment in the development of electrified vehicle solutions by 2022, or about \$2 billion per year.

Cost of management

10000000000

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. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, UNGC and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

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

Company- specific description

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)

170000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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.

Management method

In 2015, our purchasing operations implemented a Risk Exposure Index (REI) developed by the Ford-MIT Alliance. The REI enabled us to identify the key elements in the supply chain that we should monitor, along with the industry as a whole, for potential disruptions to production due to climate change-induced weather events or other natural or man-made disasters. Our supply risk

strategy has evolved further 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. Ford has made over \$1.5 million in research and capital investments to implement the supply chain monitoring program. There are plans to continue investing more over the next 3-4 years. 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 (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.

Cost of management

1500000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

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

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)

175000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 66,000 vehicles in 2018, or 2% of North American production. If Cuautitlán production was stopped due to the unavailability of water, 2% of 2018 North American earnings before taxes is \$175 million, assuming production of those products could not be moved to another facility.

Management method

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.

Cost of management

1600000

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. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Reduced demand for goods and/or services due to shift in consumer preferences

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 San Francisco, Charlotte, Denver, Detroit and Long Beach, as well as five college campuses. Ford also launched GoBike, a bike sharing service in San Francisco in 2017.

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)

76000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 \$76 million, based on 2018 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.

Management method

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 as well as five college campuses, by purchasing Spin, a dockless electric scooter sharing service in 2018. We also launched GoBike, a bike sharing service in San Francisco in 2017 and 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 is about \$11 billion/year over the next 5 years, combining R&D budget, investments in electrified vehicles, and investments in autonomous vehicles. Ford's Engineering, Research and Development expenses were \$8.2 billion in 2018. Ford announced in 2018 that we are investing \$11 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.

Cost of management

11000000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Market: Uncertainty in market signals

Type of financial impact

Abrupt and unexpected shifts in energy costs

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. 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 all-new 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

Current

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)

36000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 2018, we sold over 72,000 BEVs, 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 \$36 million.

Management method

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 aluminum 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 Accord. The cost of management is about \$10 billion/year over the next 5 years, combining R&D budget and dedicated electrified vehicle development and introduction. Ford's Engineering, Research and Development expenses were \$8.2 billion in 2018. Ford also announced in 2018 that we are investing \$11 billion for the development of electrified vehicle solutions by 2022, or about \$2 billion per year.

Cost of management

10000000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG Goal 12-Responsible Consumption and Production, and 13-Climate Action

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact

Increased revenue through demand for lower emissions products and services

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 recently announced an \$11 billion investment in global EV products including the introduction of many BEV, PHEV, and HEV by 2022. 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)

1000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 net earnings by about \$1 million, based on 2017 EU sales and earnings (Europe incurred a loss in 2018). 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).

Strategy to realize opportunity

Ford has institutionalized the Creating Value Roadmap Process, which includes a Business Plan Review and Special Attention Review process where the 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 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 and we will add additional electrified vehicle (EV) solutions in our portfolio by 2022. 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 is about \$10 billion/year over the next 5 years, combining R&D budget and dedicated investment in electrified vehicle development and introduction. Ford's Engineering, Research and Development expenses were \$8.2 billion in 2018. Ford also announced in 2018 that we are investing \$11 billion for the development of electrified vehicle solutions by 2022, or about \$2 billion per year. The cost of management can be reduced through economies of scale if the European tax break-points are harmonized across regions.

Cost to realize opportunity

10000000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and Production, 13-Climate Action.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Type of financial impact

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

Company-specific description

Ford participates in the mandatory EU Emissions Trading System, which commenced in January 2005. This type of CO2-related taxation and emissions reporting obligations in Europe drive energy efficiency projects at our manufacturing facilities in Europe. This included the installation of a combined heat and power (CHP) unit at the Saarlouis facility installation of 5,900 kW, wind turbines at Dagenham and a 1,200 kW solar array in Merkenich.

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)

326000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

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 19%, which is approximately 96,000 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.

Strategy to realize opportunity

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 throughout Europe, 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.

Cost to realize opportunity

1300000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and Production, 13-Climate Action.

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

Type of financial impact

Increased revenue through demand for lower emissions 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 (GoBike in San Francisco) and a dockless scooter sharing service (Spin scooters), operating in areas such as San Francisco, Charlotte, Denver, Detroit and Long Beach, as well as five college campuses.

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)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Neutral. Our strategy gives us flexibility, within limits, to shift production toward relatively high-demand 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.

Strategy to realize opportunity

Ford uses the Creating Value Roadmap Process, which includes a 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 is about \$10 billion/year over the next 5 years, combining R&D budget and electrified vehicle development and introduction. Ford's Engineering, Research and Development expenses were \$8.2 billion in 2018. Ford also announced in 2018 that we are investing \$11 billion for the development of electrified vehicle solutions by 2022, or about \$2 billion per year.

Cost to realize opportunity

10000000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 7-

Identifier

Opp4

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

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.

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)

500000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We launched the EcoBoost engine in 2009 and have produced more than 5 million. We produced more than 2.2 million EcoBoost engines in 2015, up nearly 40 percent from 2014. In 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 vehicles with an EcoBoost engine were sold at \$200 premium compared to the base engine, it would increase Ford revenues by \$0.5B.

Strategy to realize opportunity

Ford monitors consumer behaviors, 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 2012-2016. Launched in Europe in 2012, the engine is now available in 10 Ford vehicles in Europe and 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. 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 engine engineering costs are roughly estimated at \$0.5B.

Cost to realize opportunity

500000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 7-

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

Type of financial impact

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

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)

5000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

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

Strategy to realize opportunity

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.

Cost to realize opportunity

45000000

Comment

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and Production, 13-Climate Action.

C2.5

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

	Impact	Description
Products and services	Impacted	Current and future regulations and the adoption of a 2 Degree Glidepath, in alignment with the Paris Climate Accord, by Ford to do our share to stabilize global temperature rise have resulted in global product and service plans, with strong investment in EV, Autonomous Vehicles and Smart City Solutions. The magnitude of this impact is high through increased costs to improve fuel economy with potential opportunities for increased demand for fuel efficient vehicles and alternative mobility services. Rapid changes in technology, services and products create internal changes to our product development, validation, services and sales. Increasing our services and technology externally impacts our dealerships and customers. For example, we have made investments in order to offer 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 many new electrified vehicles to our portfolio by 2022 including BEVs, PHEVs, and HEVs. 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 aluminum in our F-150 and Super Duty, and more recently in the Lincoln Navigator and Ford Expedition. 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 2017 we launched GoBike, a bike sharing service in San Francisco, and FordPass Bikes in Cologne. Ford has responded to changing customer needs in large metropolitan areas as well as five college campuses by purchasing Spin, a dockless electric scooter sharing service in 2018. 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	Impacted for some suppliers, facilities, or product lines	Extreme weather events or other effects of climate changes including droughts and floods, can pose a risk to our supply chain. The magnitude of impact is significant in areas where there are risks of floods and drought. Ford has many suppliers in northern Tamil Nadu state in India, especially in the Palar- Ponnaiyar river basin, which could have possible future business challenges. The area is under current water stress, which has the potential to negatively impact Ford by causing near-term or future possible supply disruptions to Ford's manufacturing operations or increases in operating costs. In another example, in 2017, water in Capetown South Africa reached a critically low level in nearby dams. We assessed which of our suppliers are located in region, reached out to them to better understand their plans for continuity of supply. There were no supply issues resulting from the drought situation, but we continue to monitor the situation and encourage our suppliers in region to continue to find ways to minimize water use and maximize water recycling and reuse. Based on data from Ford lost production in the 2011 Thailand floods, we lost \$5000 per vehicle on reduced production of 34,000 units resulting in a loss of \$170 million, the loss of other flooding events could be of similar magnitude. Through the Partnership for A Cleaner Environment program, Ford is actively engaging suppliers to be more responsive to Climate Change issues such as CO2 emissions and extreme weather events such as droughts and floods. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 2-Responsible Consumption and Production.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Ford established water, waste, CO2 and energy efficiency strategies encompassing all Ford facilities to address the potential for flooding and drought due to climate change. The magnitude of impact is significant in areas where there are risks of floods and drought. 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). Fourteen of our manufacturing plants are located in water-stressed areas. 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. 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. The magnitude of impact is significant in areas where there is extreme weather that could disrupt the production of natural gas. Supply disruptions raise market rates and jeopardize the consistency of vehicle production. Disruptions in plant operations would occur on a localized level on a plant-by-plant basis. If a plant were to be shut down due to natural gas disruption, 100% production impact would occur at that plant. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 2-Responsible Consumption and Production.
Investment in R&D	Impacted	Current and future regulations and the adoption of a 2 Degree Glidepath, in alignment with the Paris Climate Accord, by Ford to stabilize global temperate rise have resulted in increased investment in global R&D to support EV implementation, light-weighting and other CO2 and Fuel economy initiatives. The magnitude of the impact is high since the change to products and services in our global business adds risk through increased costs to improve fuel economy with potential opportunities for increased demand for fuel efficient vehicles and research into light-weighting. For example, we announced an \$11B investment to add many new electrified vehicle (EV) solutions to our global portfolio by 2022 including BEVs, PHEVs, and HEVs. 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 aluminum in our F-150 and Super Duty, and more recently in the Lincoln Navigator and Ford Expedition. Our R&D budget has increased from \$6.2 billion in 2013 to \$8.2 billion in 2018. The magnitude of this impact is high to the global business through these increased costs and rapidly expanding technology. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 12-Responsible Consumption and Production.
Operations	Impacted	The magnitude of impact is significant in areas where there are risks of floods and drought. 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. For example, 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. 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. Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 12-Responsible Consumption and Production.
Other, please specify	Please select	

C2.6

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

	Relevance	Description
Revenues	Impacted	Global regulations and requirements mandating the design, development and sale of electric vehicles and incorporating new materials and technologies to improve fuel economy affect expected earnings depending on the vehicle mix and the willingness of consumers to pay for technology implementation. Ford established a dedicated global team, Team Edison, to focus exclusively on creating an ecosystem of products and services for electric vehicles and the unique revenue opportunities that they provide with regional applications. In the medium-term, our planning process includes bringing many electrified vehicles, including BEVs, PHEVs, and HEVs, to market by 2022. The electrified products include the F-150 Hybrid, Mustang Hybrid, Transit Custom plug-in hybrid, an autonomous vehicle hybrid, Ford Police Responder Hybrid, Police Interceptor Utility Hybrid SUV, Explorer HEV and PHEV, Kuga PHEV and a fully-electric small SUV. Based on 2017 and 2018 data, A 1% increase in US sales results in a \$76M increase in earnings whereas a 0.5% increase in EU sales results in a \$1M increase in revenue. If a \$500 incentive is required to meet US regulatory obligations, it could result in a \$36M revenue decrease based on 2018 EV sales. The impact of electrified vehicles on our revenue could be significant depending on market acceptance. If products are well received there could be revenue opportunity, if significant incentives are required (in the thousands of dollars per vehicle) there would be significant downside revenue impact. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Operating costs	Impacted for some suppliers, facilities, or product lines	Climate change may affect the cost of materials, fuel, electricity and water. These effects may differ based on the location of the facility and the delivery distance for the materials or components. Actions taken to mitigate climate change such as water treatment facilities particularly in drought-prone areas or natural gas reserves may result in increased operating costs. In an effort to meet European regulatory requirements, actions have been taken to reduce CO2 emissions by 19% since 2013. 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. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure. The impact on operating costs as described are not significant.
Capital expenditures / capital allocation	Impacted	As part of Ford's comprehensive view of its responsibility to improve fuel economy and reduce greenhouse gas emissions, Ford's planning process includes more than \$11 billion investment in electrified vehicle solutions to put new electric vehicles on the road faster. As part of the effort to refocus on electrification, funding for traditional internal combustion engine development was re-allocated to EV powertrain development to support the additional vehicle programs. In addition, Ford established the Ford Smart Mobility LLC and Team Edison providing both personnel and resources to develop and implement strategies related to future mobility and electrified vehicle solutions. Ford established Water Usage and Energy Efficiency Strategies that include resources allocated for actions being taken at all facilities to improve overall efficiency of water and electricity usage. If a diverse portfolio of powertrains needs to be maintained in addition to electrification the impact to capital expenditures would be significant. If electrified powertrains completely replace internal combustion engines the impact would not be significant. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Acquisitions and divestments	Impacted	Ford acquired interest in Argo AI, for \$1B over 5 years, TransLoc and Spin and GoBikes to implement our Ford Smart Mobility Strategy to move from being a transportation company to positively impacting the way consumers and communities think about mobility. The impact of smart mobility on acquisitions are significant. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Access to capital	Not yet impacted	While consumer preferences and technology choices are changing, there is a wide range of uncertainty associated with the pace of uptake of new technologies such as all electric and autonomous vehicles. If climate change causes a significant future shift in customer preferences unaccompanied by affordable technology, or if Ford is investing in products or technology customers don't accept, there could be a significant impact to profitability affecting our access to capital. In order to minimize the chance of this outcome and ensure our access to capital, Ford is remaining flexible in our products and services so that we will be able to pivot depending on emerging requirements, regional differences and changing customer needs. We are positioning Ford Smart Mobility to respond to demand for different kinds of urban transportation solutions, as it becomes increasingly clear that to be successful, automotive companies must be able to create products and services that minimize air pollution and reduce congestion in urban centers. Additionally, in our core business, we are investing in fuel efficient powertrains as well as electrification to meet customer needs for a variety of demand scenarios. That is why Ford is making sure we remain in a competitive position to exploit market opportunities for a wide range of emerging technologies and ensure our investments in these products and services align with a clearly monetizable business case. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Assets	Impacted for some suppliers, facilities, or product lines	Ford manages risk of climate change on our assets by evaluating on a regular basis the impact of acute and chronic climate and taking actions to ensure continued manufacturing capabilities for both suppliers and for Ford manufacturing. From a physical perspective, we assess risks and opportunities to our facilities at least annually. Extreme weather has the potential to disrupt and significantly impact the production of natural gas, a fuel we need to manufacture our vehicles. If production facilities are damaged by extreme weather events the impact could be significant. As an opportunity, we developed our water strategy to prioritize addressing our use, supplier use and community issues in water-stressed regions identified using the Global Water Tool, developed by the World Business Council for Sustainable Development. We are investing in water-saving technologies and process improvements across our global operations reducing operational costs while contributing to social welfare of the local community. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Liabilities	Not impacted	Ford does not anticipate climate change affecting our ability to meet our liabilities at this time as we were able to meet our liabilities through the previous downturn and we do not anticipate this changing in the future. Our connection to other frameworks includes our TCFD & SASB Strategy recommended disclosure.
Other	Please select	

C3. Business Strategy

C3.1

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

Yes

C3.1a

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

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

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

Ford has institutionalized the Creating Value Roadmap Process, which includes a Business Plan Review and Special Attention Review process where the senior leadership of the Company from each of the Business Units and the Functional Skill Teams reviews the status of the business, the risks and opportunities presented to the business including climate related issues, and develops specific plans to address those risks and opportunities.

Ford's governance process integrates science based emission reduction targets into products and operations aligned with limiting the impacts of climate change. Our Sustainability, Environmental & Safety Engineering organization is actively engaging with all organizations in the company to meet these targets at the lowest cost to the business. These targets are directly linked to facilities, technologies, and Ford Smart Mobility to deliver low carbon solutions. We assess our product plans for alignment with our 2°C glide path emissions targets, in alignment with the Paris Climate Accord, at least twice a year. We assess the risks each of our facilities faces (with input from third-party engineers) at least annually. This takes into account the risk of exposure to hurricanes, tornadoes, other storms, flooding and earthquakes.

Example #1: Following the success of the 2015MY aluminum intensive F-150 and 2017MY F-250/350 Super Duty trucks, we transformed another core product in response to regulatory requirements driven by climate change. In 2018 model year we introduced the redesigned the Ford Expedition and Lincoln Navigator vehicles with major changes in design and adding aluminum and other materials that reduce weight improve sustainability. "Closed loop" aluminum and seat fabric recycling processes significantly reduce life-cycle waste and greenhouse gas emissions.

Example #2: Near -term competitive advantage is achieved by offering our customers a portfolio of products that provide fuel efficient or low carbon transportation. We continue to pursue opportunities to improve vehicles with conventional gasoline and diesel powertrains. We are implementing a range of advanced engine and transmission technologies as well as improving aerodynamics and reducing weight. Alternative fuels and powertrains are playing a growing role in reducing carbon emissions. Ford announced in December 2018 that we are investing more than \$11 billion in electrified vehicle solutions by 2022, including many new HEVs, PHEVs, and BEVs. The future requires developing the flexibility and capability to market lower-GHG-emission products, in line with evolving market conditions; so we work with industry partners, energy companies, consumer groups and policy makers to establish effective and predictable markets.

Example #3: Ford Smart Mobility, LLC was created in 2016 due to changing consumer demand for low carbon transportation. As part of our Ford Smart Mobility organization, we have created the City Solutions team to work with cities around the world to create future solutions, starting with San Francisco. In 2018 we purchased e-scooter company Spin, launching in 9 cities and 5 college campuses. Ford GoBikes continued operation in 2018 in the SF Bay area. Also in 2018 Ford Smart Mobility released the Ford City Data Report, showcasing what we at Ford can do with connected vehicle data, smart infrastructure, and our analytical capabilities. An example is development of a smart solution that can help identify where traffic incidents are likely to occur – and enable city authorities to take pre-emptive action, reducing congestion and fuel use. We now offer medical carpool services in Detroit. We continue to develop our range of autonomous vehicles (AV), aiming to launch them commercially by 2021, and have deployed a test fleet in Washington D.C. In 2018 we created Ford Autonomous Vehicles LLC to accelerate our AV business.

Example #4: In 2010, our mid-term Operational target for CO₂/vehicle goal of 30% reduction in tCO₂/vehicle produced (scope 1+2) by 2025 was reached in 2017, 8 years early. We established a new absolute tCO₂e reduction target of 16% by 2023 and a 100% renewable energy target by 2035 for our manufacturing operations. We are a member of the US Green Building Council (USGBC) and support its industry-standard LEED (Leadership in Energy and Environmental Design) rating system. Currently 26 of our buildings are LEED-certified. We also reduced operational water use by 7.8% (with an aim of 30% between 2015 and 2020) while 88 Ford sites have achieved zero waste to landfill (ZWTL) status.

Example #5: To ensure each stage of our supply chain adheres to ethical standards, we joined an IBM-led project to digitally map cobalt through our supply chain. This is one of the ways that we ensure materials used in our vehicles are responsibly produced, traded and processed.

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, SASB, GRI, UNGC and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action.

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

Climate-related scenarios	Details
2DS	<p>Boundaries and time horizons: Our 2-degree scenario (2DS) glide path, in alignment with the Paris Climate Accord, models 11 global regions over the years 2000 to 2050. From the model we extract results for the four major regions where we do business (North America, the EU, China and South America) over the near-term (5 years) to mid-term (15 years), currently from 2015 to 2030. 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). The methodology has evolved over time. Currently we use the IEA Energy Technology Perspectives (ETP) 2DS light-road CO2 pathway to determine the rate of CO2 reduction needed. We have updated the WBCSD SMP model to calculate global (11 world 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. We assume biofuel availability is constant at 2015 levels. Every 5 years we update historical data to ensure that cumulative CO2 emissions are accurately counted. 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 IEA ETP 2DS scenario. The scenario output is gCO2/km TTW targets for our future new vehicle fleets in North America, the EU, China and South America that support 2-degree temperature change stabilization. Results and Outcomes: The scenario analysis indicates the new LDV fleet tailpipe CO2 reductions needed to contribute to 2 degree stabilization. The 2DS targets provide a mid-term outlook for CO2 emissions, beyond where regulations end. Regional targets for approximately the next 10-15 years (currently to 2030) are approved at the Global Sustainability Meeting (GSM, a monthly VP-level forum) and cascaded to the regional product development engineering teams for vehicle planning, including both conventional internal combustion vehicles and increasing volume of electrified vehicles. Internal reporting and monitoring: Alignment of the vehicle cycle plans with the 2DS CO2 glide path is assessed at least twice a year by a cross-functional team from Sustainability, Environmental & Safety Engineering (SE&SE), Research & Advanced Engineering, and Product Development. The alignment status is reported at the GSM and also reviewed at the Sustainability and Innovation Board of Directors Committee. The Vice President of SE&SE is responsible for the 2DS CO2 glide path assessment corporate metric. When external conditions (e.g. economic downturns, technology breakthroughs) may appear to affect key inputs (sales, vehicle efficiency, biofuel supply), the model is updated, the 2DS targets are recalculated, and the vehicle plans are reassessed against the updated targets. Case study: The 2DS targets are crucial for mid-term to long-term planning. We use the continuously declining 2DS CO2 glide path to describe targets for the CO2 intensity of our future fleet. Using the 2030 glide path targets, we conducted analyses to estimate the necessary fleet electrification shares of each EV type individually and combined. Our plans include offering conventional ICE, hybrid, plug-in hybrid electric, and battery electric vehicles across many vehicle lines, including the electrification of our key SUV, adding Explorer HEV in the U.S. and Explorer PHEV in Europe. Ford’s business plan to invest \$11 billion in electrification of the vehicle fleet supports meeting the 2 degrees CO2 glide path. External reporting: We have reported our CO2 glide path methodology publicly in our Corporate Sustainability Report for many years.</p>
RCP 2.6	<p>RCP2.6 scenario represents a stretch goal of the 2015 Paris Climate Accord for a 1.5 deg stabilization. It is used to understand the relative stringency of 1.5 degrees compared to our 2 degree (2DS) scenario. Both scenarios use the same model, but with different CO2 emission limits. Boundaries and time horizons: RCP2.6 models 11 global regions over the years 2000 to 2100. This is a longer time horizon than the 2DS scenario to capture the 2070 time frame where the 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). Methodology: Since 2007, Ford has created CO2 glide paths describing the avg g CO2/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). For 1.5 degs, we use IPCC RCP2.6 global, all-sector CO2 pathway to determine the rate of CO2 reduction needed. Since our last update, IEA ETP has developed beyond 2DS which has a light-road pathway. We updated the WBCSD SMP model to calculate global (11 world 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, and diesel vehicle sales shares. We assume biofuel availability constant at 2015 levels. Every 5 yrs we update historical data to ensure cumulative CO2 emissions are accurately counted. Given fleet emission forecast 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. Results and Outcomes: 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 reporting and monitoring: Internally, we report and assess progress towards 2DS. RCP2.6 is used as a sensitivity scenario. 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. Should external conditions (e.g. economic incentives, technology breakthroughs) appear to affect key inputs supporting RCP2.6 scenario (BEV sales, vehicle efficiency, renewable energy supply), the model can be updated, the RCP2.6 targets can be recalculated, and the vehicle plans can be reassessed against the updated targets. 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.</p>

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

The Ford low-carbon transition plan includes elements for Products and Services, Facilities, Manufacturing footprint, and supply base. By implementing an ambitious plan of vehicle technology, alternative powertrain and fuel actions, we are improving fuel economy and reducing CO2 emissions across our products via our Global Technology Migration Path for CO2 reduction consistent with the Paris Climate Accord in the near (2020), mid (2025) and long (2030+) terms (<https://corporate.ford.com/microsites/sustainability-report-2018-19/assets/files/sr18.pdf>). Climate change is shaping the way we do business and creates a strategic advantage. We are expanding our business model to be both an auto and a mobility company. Our strategy involves continually strengthening and investing in our core automotive business, while aggressively pursuing new emerging opportunities through Ford Smart Mobility – our plan to be a leader in connectivity, mobility, autonomous vehicles, the customer experience, and data and analytics. Addressing the risks and effects of global warming is of paramount importance to Ford, and it is not just in our manufacturing facilities where we are working to reduce our footprint and create a better world. Our science-based global strategy aims to reduce the CO2 emissions from our vehicles as well as our operational processes. The strategy seeks to deliver high-quality products that meet consumer demand while also responding to the risks presented by climate change. We use a variety of approaches to improve the fuel economy of our gasoline- and diesel-powered vehicles, guided by our Sustainable Technologies and Alternative Fuels Plan. Improving fuel economy goes hand-in-hand with our work on electrification. Our plan to develop sustainable technologies and alternative fuels includes researching and developing alternative powertrains and fuel options across all our vehicles. Driving fuel-efficient vehicles can help make an impact on more than just our customers' pocketbooks – by lowering carbon emissions, these vehicles can also help benefit the planet. That is why Ford offers many fuel-efficient EcoBoost and electrified vehicles today that help lower carbon emissions to benefit the planet. We will increase the number and variety of fuel-efficient options in the near future. We are dedicated globally to doing our part to meet our commitment to the Paris Climate Accord. Ford is investing \$11B in our global electrification programs to develop many new BEV, PHEV, and HEV solutions to be launched by 2022. Significant efforts also have been made to establish and implement Energy Use, Greenhouse Gas Emissions, Water Use and Waste Reductions Strategies at all Ford locations. We share best practices with selected suppliers through the Partnership for A Cleaner Environment (PACE) program to encourage suppliers to set targets and take similar actions. Our Energy Management Operating System (EMOS) is a comprehensive approach focusing on facility improvements, data management and the supply of energy to our manufacturing plants. We met our global goal of a 30% reduction in GHG emissions per vehicle produced between 2010 and 2025 in 2017, eight years ahead of schedule. Ford supports the implementation of renewable energy where the project can be tied to the customer's facility, either directly or through the local distribution utility, and we believe that improves the local environment and adds resiliency to their grid. Ford Motor Company has a new renewable energy target of 100% by 2035. With activities coordinated regionally, our Material Planning and Logistics (MP&L) organization is responsible for designing and operating our global transportation networks, and devising high-quality and efficient packaging to protect materials in transit. Understanding, quantifying and reporting our freight emissions helps us understand our overall environmental impacts, and prioritize ways to minimize our total life cycle carbon footprint. We work closely with our logistics partners to collect data from across our networks and collate it in a global performance scorecard. Freight emissions are influenced by a wide range of interrelated factors, including the mode of transport, the efficiency of the equipment used and the design of the freight network. We seek to achieve emissions reductions through Improving Freight Efficiency, Best Practice Technologies and Alternative Transport Modes.

Our connection to other frameworks includes our TCFD Strategy recommended disclosure, TCFD, SASB, UNGC and UN SDG 13-Climate Action.

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

Target reference number

Abs 1

Scope

Scope 1+2 (location-based)

% emissions in Scope

100

Targeted % reduction from base year

16.2

Base year

2017

Start year

2018

Base year emissions covered by target (metric tons CO2e)

4168442

Target year

2023

Is this a science-based target?

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

% of target achieved

0

Target status

New

Please explain

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. Our connection to other frameworks includes our TCFD Metrics & Targets, SASB, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and production, 13-Climate Action.

Target reference number

Abs 2

Scope

Scope 1+2 (location-based)

% emissions in Scope

100

Targeted % reduction from base year

75

Base year

2017

Start year

2018

Base year emissions covered by target (metric tons CO2e)

4168442

Target year

2035

Is this a science-based target?

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

% of target achieved

0

Target status

New

Please explain

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 energy at manufacturing locations gives us 75% reduction in absolute tCO2e by 2035. Our connection to other frameworks includes our TCFD Metrics & Targets, SASB, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and production, 13-Climate Action

C4.1b

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

Target reference number

Int 1

Scope

Scope 3: Use of sold products

% emissions in Scope

70

Targeted % reduction from base year

Metric

Grams CO2e per kilometer*

Base year

2010

Start year

2012

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

174

Target year

2030

Is this a science-based target?

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

% of target achieved

Target status

Underway

Please explain

This target is for light-duty vehicles sold in the U.S., EU. We published our science-based targets methodology in 2014 (dx.doi.org/10.1021/es405651p | Environ. Sci. Technol. 2014, 48, 6453–6460). Absolute emissions reductions are dependent on unknown future sales volumes. We have assumed the same future regional sales shares as 2010 giving the same percent reduction in absolute and intensity targets. While Ford's product development plans are based upon delivering these long-term reductions in CO2 emissions, we anticipate that the year-over-year reductions will vary somewhat. In some years the reductions will be greater and in other years they will be less. That is because delivering on these targets will be dependent to some degree on market forces that we do not fully control (e.g., changes in energy prices and changes in the mix of vehicles demanded by the consumers in the markets in which we operate). Furthermore, our product strategy is based on multiple inputs, including regulatory requirements, competitive actions and technology plans. Our connection to other frameworks includes our TCFD Metrics & Targets, SASB, UNGC and UN SDG 7-Affordable and Clean Energy, 12-Responsible Consumption and production, 13-Climate Action.

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

C4.2

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

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*	10	613000
Implementation commenced*	5	27075
Implemented*	6	35979
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 type

Energy efficiency: Building services

Description of initiative

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

15906

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2088291

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

9963290

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

LED Lighting - Multiple Locations Our connection to other frameworks includes UN SDG 7-Affordable and Clean Energy, 13-Climate Action.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

20072

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

2004861

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

8632500

Payback period

4 - 10 years

Estimated lifetime of the initiative

16-20 years

Comment

Paint system optimization Our connection to other frameworks includes UN SDG 7-Affordable and Clean Energy, 13-Climate Action.

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. Our connection to other frameworks includes TCFD, UN SDG 7-Affordable and Clean Energy and UN SDG 13-Climate Action.
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. Our connection to other frameworks includes TCFD, UN SDG 7-Affordable and Clean Energy, UN SDG 13-Climate Action and UN SDG 17 – Partnership for the Goals.
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-2018-19/customers-products/emissions/index.html Our connection to other frameworks includes TCFD, UN SDG 7-Affordable and Clean Energy and UN SDG 13-Climate Action.
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. Our connection to other frameworks includes UN SDG 7-Affordable and Clean Energy, UN SDG 13-Climate Action and UN SDG 17 – Partnership for the Goals.

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

Hybrid electric vehicles and plug-in hybrid electric vehicles

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

Avoided emissions

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

Other, please specify (Internal calculation)

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

1.4

Comment

HEVs and PHEVs provided lower fuel consumption resulting in reduced CO2 emissions. In the US, for example, Fusion Hybrids and Fusion Energis (PHEV) using US average electricity have saved over 3.0 million tonnes of CO2 compared to a conventional 2.5L Fusion since 2009. 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 2014, 2015, 2016, 2017, and 2018 were \$6.7B, \$6.7B, \$7.3B, \$8B, and \$8.2B, respectively. Our connection to other frameworks includes TFCF, UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

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)

1389740

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)

3482444

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)

3590736

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 Scope 1 and Scope 2 emissions.

ISO 14064-1

Programa GEI Mexico

The Climate Registry: General Reporting Protocol

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

US EPA Mandatory Greenhouse Gas Reporting Rule

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 Scope 1 and Scope 2 emissions.

ISO 14064-1, programa GEI Mexico, The Climate Registry: General Reporting Protocol, US EPA Mandatory Greenhouse Gas Reporting Rule, Australia - National Greenhouse and Energy Reporting Act Brazil GHG Protocol Programme Programa GEI Mexico The Climate Registry: General Reporting Protocol 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)

1442963

Start date

January 1 2018

End date

December 31 2018

Comment

Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 13-Climate Action

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

Our connection to other frameworks includes our UN SDG 13-Climate Action.

C6.3

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

Reporting year

Scope 2, location-based

3349808

Scope 2, market-based (if applicable)

3219716

Start date

January 1 2018

End date

December 31 2018

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. Ford also added additional Scope 1 and Scope 2 data through a complete global office building inventory Our connection to other frameworks includes our TCFD Metrics & Targets.

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 1.80% 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 1.03% 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 0.58% 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 Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

31161493

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 23% 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/\$), 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 to avoid double counting.

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

24

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Purchased goods and services are 6.5 times greater than S1+S2 and therefore determined to be relevant. In 2018, 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 23% 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1207456

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/\$), 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

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Capital goods are 25% of S1+S2 and therefore determined to be relevant. In 2018, 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1200000

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 latest version of Argonne National Lab's GREET 2017 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

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Fuel and energy-related activities are 25% of S1+S2 and therefore determined to be relevant

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2283250

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 travelled, 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 figure 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)= 1569079 Metric Tonnes CO2e, Finished vehicle (downstream)= 864911 Metric Tonnes CO2e

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

0

Explanation

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 48% 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 pro-actively 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Waste generated in operations

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

2336

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

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

0

Explanation

We consider waste generated in operations to be not relevant because it is very small compared to Scope 1 + Scope 2. In 2018, Ford avoided over 5 million metric tons of greenhouse gas emissions through recycling. We are continuing to reduce the amount of waste sent to landfill every year through our Global Waste Strategy. 88 Ford manufacturing and non-manufacturing facilities send zero waste to landfill. Of particular note is the closed loop aluminum recycling process used in the production of Ford's trucks. As the scrap aluminum 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 aluminum 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 aluminum avoids 95 percent of the greenhouse gas emissions associated with primary aluminum production. It uses significantly less energy and water also. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

55456

Emissions calculation methodology

Ford utilized total GLOBAL booked air, rail and rental car miles traveled for 2017 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: 54,486 Rail Travel: 0 Car: 970

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

100

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Business travel is only 1% of S1+S2, but nonetheless deemed to be relevant. 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 Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO2e

818534

Emissions calculation methodology

We conducted a global employee commuting survey, 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 and summed to get total emissions by region. The regional totals were extrapolated from the survey sample to the entire employee population. The CO2/distance emission factors were obtained from multiple sources. For cars and light trucks, vehicle efficiency (MPG, L/100 km, kWh/100 km) are from www.fueleconomy.gov (U.S.) or UK Vehicle Certification Agency (rest of the world). The CO2 intensity of public transit modes 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

Explanation

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 included 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Leased assets are included in Scope 1 and Scope 2 calculations

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Downstream data for this category are 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

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 processing is considerably less CO2 intensive than production of the incomplete vehicles, which is captured in the Scope 1 and Scope 2 operational control, and deemed to be not relevant. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

134477144

Emissions calculation methodology

2018 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 82% of all vehicles sold in 2018. The global fleet average sales-weighted tailpipe gCO2/km was calculated from regional data. Assuming 150,000 km lifetime, the total CO2 emissions of the 2018 new vehicle fleet were calculated.

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

0

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Use of Sold Products is 28 times greater than S1+S2, and therefore deemed to be relevant. The CO2 emissions represent the lifetime tailpipe (TTW) CO2 from passenger cars and light commercial vehicles sold in 2017. This calculation includes about 82% of total sales. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1300000

Emissions calculation methodology

We used a vehicle disposal factor of 238 kg CO2e/vehicle or 0.165 kg CO2eq/kg from GREET2017. We applied the factor to 2017 sales data for cars and light commercial vehicles in the U.S., EU, China, Canada, Mexico, Brazil, Australia and India. These regions represent about 82% of all vehicles sold in 2018. The U.S. calculation was based on vehicle mass using the per kg disposal factor. All other regions used the per vehicle disposal factor.

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

0

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. End of Life is 27% of S1+S2, and therefore deemed to be relevant. The emissions from the ELV 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

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.

Franchises

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1957800

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 the 3263 number of 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

Explanation

We consider Scope 3 emissions to be relevant if they are comparable to Scope 1+Scope 2 emissions. Franchises are 41% 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. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 12-Responsible Consumption and Production and UN SDG 13-Climate Action

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

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

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Other (downstream)

Evaluation status

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

C6.7

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

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

0.0000299

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

4792771

Metric denominator

unit total revenue

Metric denominator: Unit total

160300000000

Scope 2 figure used

Location-based

% change from previous year

10

Direction of change

Decreased

Reason for change

Decreased total emissions with increase in revenue. The 2017 intensity figure was 0.0000334 with gross total emissions of 4873571 and gross revenue of 145700000000. This allowed for a decrease of 10% using $((0.0000334-0.0000299)/0.0000334)$. Energy improvement projects at manufacturing locations lead to the total decrease in emissions. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 13-Climate Action

Intensity figure

0.8

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

4792771

Metric denominator

vehicle produced

Metric denominator: Unit total

5962289

Scope 2 figure used

Location-based

% change from previous year

8

Direction of change

Increased

Reason for change

Additional non-manufacturing locations (global office buildings) added to the gross scope 1 + scope 2 totals in 2018 with a 10% decrease in global production. Additional non-manufacturing locations accounted for an increase of 2.7% in the gross scope 1 and 2 emissions. The 2017 intensity figure was 0.74 with gross total emissions of 4873571 and total production of 6602888. This resulted in a 8% increase in emissions per vehicle produced $((0.74-0.80)/0.74)$. A 10% decrease in production was partially off-set by energy improvement projects at manufacturing locations. Our connection to other frameworks includes our TCFD Metrics & Targets and UN SDG 13-Climate Action

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	1440823	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	833	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	1307	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	996661.91
Europe	277918.3
Asia, Australasia	92718.27
South America	46253.66
Africa and Middle East	29411.27

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	1204353
Non-Manufacturing Operations	238610

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	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	1204353	<Not Applicable>	
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
North America	2154307	2154307	4260489	0
Europe	640951	510859	180610	289857
Asia, Australasia	410839	410839	724922	0
South America	54164	54164	318140	0
Africa and Middle East	89548	89548	94887	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 emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Manufacturing Operations	2763227	2660613
Non-manufacturing Operations	586581	559103

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
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	2763227	2660613	
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

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

0.00011

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

134409771.6

Metric denominator

p.km

Metric denominator: Unit total

1235821459500

% change from previous year

2.5

Vehicle unit sales in reporting year

4933419

Vehicle lifetime in years

10

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

15000

Load factor

1.67

Please explain the changes, and relevant standards/methodologies used

The decrease in tCO₂e/p.km from 2017 to 2018 is due to lower total emissions (-16.7%). Emissions decreased because of decreased sales (-14.6%) and lower CO₂-intensity (-2.4%) of the vehicles. The load factor of 1.67 passengers per vehicle is based on passenger vehicle occupancy factors in the U.S. published by 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 total use of sold products as described in question C6.5: 2017 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 82% of all vehicles sold in 2018. The fleet average sales-weighted gCO₂/km was calculated. Assuming 150,000 km lifetime, the total CO₂ emissions of the 2018 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?

Increased

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	17179	Decreased	0.4	Last year 17179 tCO2e emissions were reduced through increased use of renewable energy in our European operations. The total European market-based Scope 2 emissions in 2017 were 525788 tCO2e and in 2018 were 508609 tCO2e. Total decrease was 525788 – 508609 = 17179 tCO2e. Total gross S1 and S2 emissions in 2018 were 4792771 tCO2e. Therefore we arrived at 0.4% through $(17179/4792771)*100 = 0.4\%$
Other emissions reduction activities	190324	Decreased	4	Last year 190323 tCO2e emissions were reduced through our energy efficiency and emission reduction projects globally. Our total S1 and S2 emissions in 2018 were 4298887 for manufacturing and in 2017 were 4489211. Total decrease was 4489211 – 4298887 = 190324. Total gross S1 and S2 emissions in 2018 were 4792771 tCO2e. Therefore we arrived at 4.0% through $(190324/4792771)*100 = 4\%$.
Divestment		<Not Applicable >		
Acquisitions		<Not Applicable >		
Mergers		<Not Applicable >		
Change in output		<Not Applicable >		
Change in methodology		<Not Applicable >		
Change in boundary	128820	Increased	2.6	Last year 128820 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 2017 were 357363 tCO2e and in 2018 were 486183 tCO2e. Therefore the increase was calculated as 486183 – 357363 = 128820 tCO2e. Total gross S1 and S2 emissions in 2018 were 4792771 tCO2e. Therefore we arrived at 2.7% through $(128820/4792771)*100 = 2.7\%$.
Change in physical operating conditions		<Not Applicable >		
Unidentified		<Not Applicable >		
Other		<Not Applicable >		

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?

Location-based

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	7236941	7236941
Consumption of purchased or acquired electricity	<Not Applicable>	289857	12546900	12836757
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	1282471	1282471
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	289857	21066312	21356169

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	No
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)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

7533438

MWh fuel consumed for self-generation of electricity

191157

MWh fuel consumed for self-generation of heat

162837

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

353994

Comment

Fuels (excluding feedstocks)

Anthracite Coal

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

48033

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

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

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Bioethanol

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

4813

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Coke Oven Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

94342

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

38110

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

306630

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

33114

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Propane Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

2816

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

Fuels (excluding feedstocks)

Residual Fuel Oil

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

1927

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Comment

C8.2d

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

Anthracite Coal

Emission factor

2867.77

Unit

kg CO2 per metric ton

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Biodiesel

Emission factor

2.5

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Bioethanol

Emission factor

5.75

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Coke Oven Gas

Emission factor

387.61

Unit

kg CO2 per MWh

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Diesel

Emission factor

2.7

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Liquefied Petroleum Gas (LPG)

Emission factor

1.5

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Motor Gasoline

Emission factor

2.32

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Natural Gas

Emission factor

1.92

Unit

kg CO2 per m3

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Propane Gas

Emission factor

62.87

Unit

kg CO2 per million Btu

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

Residual Fuel Oil

Emission factor

2.98

Unit

kg CO2 per liter

Emission factor source

United States EPA GHG Inventory Database

Comment

Used United States EPA GHG Inventory Database

C8.2e

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	141597	141597	0	0
Heat	123190	123190	0	0
Steam	231200	231200	0	0
Cooling	0	0	0	0

C8.2f

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

Basis for applying a low-carbon emission factor

Energy attribute certificates, Guarantees of Origin

Low-carbon technology type

Wind

Hydropower

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

Europe

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

289857

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

0

Comment

Ford receives energy sourced with a low carbon emission factor for our operating facilities in Cologne

C-TO8.4

(C-TO8.4) Provide any efficiency metrics that are appropriate for your organization’s transport products and/or services.

Activity

Light Duty Vehicles (LDV)

Metric figure

0.18

Metric numerator

Other, please specify (kg/CO2)

Metric denominator

Use phase: Vehicle.km

Metric numerator: Unit total

134477144353

Metric denominator: Unit total

740012850000

% change from previous year

-2.5

Please explain

The kgCO2/km of the global Ford fleet (LDV + Medium/Heavy Duty) decreased from 2017 to 2018 primarily because 2018 sales of medium-heavy duty trucks in the U.S. decreased by 40%. Both the numerator (absolute CO2 emissions from Scope 3 lifetime use of sold products) and denominator (sales x 150,000 lifetime km) decreased from 2017 to 2018. (Note: CDP2018 metric was reported in gCO2/km, not tCO2/km.)

Activity

Light Duty Vehicles (LDV)

Metric figure

0.66

Metric numerator

tCO2e

Metric denominator

Production: Vehicle

Metric numerator: Unit total

3967378

Metric denominator: Unit total

5962289

% change from previous year

5.4

Please explain

The Ford global average manufacturing tCO2e/vehicle produced increased by 5.4% from 2017 (0.63 t/veh) to 2018. The numerator, absolute Scope 1+Scope 2 (location-based) emissions from manufacturing locations decreased by 4.8%. But the denominator, vehicle production, decreased by 9.7%, causing the manufacturing intensity to increase by 5.4%.

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

3.2

Metric numerator

kilograms

Metric denominator (intensity metric only)

vehicle produced

% change from previous year

18

Direction of change

Decreased

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 50 manufacturing plants that are send zero waste to landfill.

Description

Other, please specify (Water Usage)

Metric value

3.7

Metric numerator

cubic meters

Metric denominator (intensity metric only)

vehicle produced

% change from previous year

2

Direction of change

Decreased

Please explain

Since 2000, we have reduced our operational water use by 62.5 percent, saving 10.4 billion gallons of water. In 2017, we continued our trend of ongoing improvement with a further overall reduction of 2 percent, while our South African facilities reduced their per-vehicle water use by 10 percent from the previous year. Ford recognizes that climate change can exacerbate water scarcity.

Description

Waste

Metric value

19.8

Metric numerator

Million Kilograms

Metric denominator (intensity metric only)

None

% change from previous year

5.7

Direction of change

Decreased

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 53 manufacturing plants that send zero waste to landfill.

Description

Other, please specify (water usage)

Metric value

22.3

Metric numerator

Million cubic meters

Metric denominator (intensity metric only)

None

% change from previous year

7.5

Direction of change

Decreased

Please explain

Since 2000, we have reduced our operational water use by 65%, saving 10.9 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

395871

Metric unit

Units

Explanation

Bio-Fuel Vehicles: In the U.S. in 2018, Ford produced 395,871 flexible-fuel vehicles (FFV), representing 13% of U.S. sales. FFVs are available in the U.S. on 6 vehicle models: Escape, Explorer, F-150, Transit, Transit Connect, and Taurus

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Battery electric vehicle (BEV)

Metric figure

4295

Metric unit

Units

Explanation

BEV: 751 Ford-branded BEVs were sold globally, along with 3544 JMC-branded vehicles in China

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Plug-in hybrid vehicle (PHEV)

Metric figure

9819

Metric unit

Units

Explanation

This represents global sales of PHEVs in 2018.

Activity

Light Duty Vehicles (LDV)

Metric

Sales

Technology

Conventional hybrid

Metric figure

66202

Metric unit

Units

Explanation

Sales of hybrid electric vehicles globally

Activity

Light Duty Vehicles (LDV)

Metric

Production

Technology

Vehicle using LPG/CNG

Metric figure

5

Metric unit

Other, please specify (Models)

Explanation

LNG/CNG: In the U.S. in 2018, Ford produced versions of the F-150, F-250, F-350, Transit and Transit Connect models 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-TO9.6/C-TS9.6

(C-TO9.6/C-TS9.6) What is your investment in research and development (R&D), equipment, products and services and which part of it would you consider a direct investment in the low-carbon transition?

Activity

Light Duty Vehicles (LDV)

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

Products

Technology area

Electrification

Investment maturity

Large scale commercial deployment

Investment figure

10000000000

Low-carbon investment percentage

81-100%

Please explain

Ford's Engineering, Research and Development expenses were \$8.2 billion in 2018. We are also investing \$11 billion in electrified vehicle (EV) solutions by 2022, about \$2 billion/year.

C10. Verification

C10.1

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

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

C10.1a

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

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

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

Type of verification or assurance

Limited assurance

Attach the statement

Ford EY17 CDP Letter.pdf

Page/ section reference

Complete for 2017EY, in process for 2018EY. Ford has updated their Global GHG Inventory System to include global Scope 1 and 2 emissions under their organizational control. This is the second year for Ford to complete a 100% global verification of Scope 1 and 2 emissions within their organizational control. The final verification report from the third party auditor is expected in September 2019. Attached is the global verification report for the 2017EY.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope

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 EY17 CDP Letter.pdf

Page/ section reference

Complete for 2017EY, in process for 2018EY Ford has updated their Global GHG Inventory System to include global Scope 1 and 2 emissions under their organizational control. This is the second year for Ford to complete a 100% global verification of Scope 1 and 2 emissions within their organizational control. The final verification report from the third party auditor is expected in September 2019. Attached is the global verification report for the 2017EY.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope

Scope 3- at least one applicable category

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Underway but not complete for current reporting year - first year it has taken place

Attach the statement

Page/section reference

In process

Relevant standard

ISO14064-3

C10.2

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

No, we do not verify any other climate-related information reported in our CDP disclosure

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 systems in which you participate.

EU ETS

% of Scope 1 emissions covered by the ETS

10.5

Period start date

January 1 2018

Period end date

December 31 2018

Allowances allocated

110184

Allowances purchased

0

Verified emissions in metric tons CO2e

151042

Details of ownership

Facilities we own and operate

Comment

Other ETS, please specify

% of Scope 1 emissions covered by the ETS

0.1

Period start date

April 1 2017

Period end date

March 31 2018

Allowances allocated

0

Allowances purchased

14300

Verified emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

C11.1d

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

Ford's strategy to comply with the schemes is to leverage our CO2 emissions reduction and energy use reduction strategies. Our target is a corporate 100% renewable energy target by 2035 and continued emphasis on energy efficiency and improvement actions. To achieve this we stopped operation of the combined heat & power plant in Valencia, decommissioning wasteful absorption chillers and introducing smaller modulating hot water boilers. At Dagenham & Bridgend, we decommissioned oversized boiler plant and replaced them with modern, efficient, fully automated systems. Likewise, Bridgend received a smaller modulating boiler for summer process heating. Further, we executed many projects to enable heat recovery from paint shop exhaust processes and implemented air recirculation controls on facility heating systems. Compliance with the schemes rules is achieved through ongoing monitoring of our actual emissions via our Global Emissions Monitoring Database. Based on this information, total annual emissions are forecast and evaluated against our emissions allowance status. Data is internally and externally reviewed to ensure data integrity.

Our connection to other frameworks includes TCFD and UN SDG 13-Climate Action

C11.2

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

Yes

C11.2a

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

Credit origination or credit purchase

Credit purchase

Project type

Hydro

Project identification

4159: Longkou Hydropower Project, Grid-connected electricity generation from renewable sources

Verified to which standard

CDM (Clean Development Mechanism)

Number of credits (metric tonnes CO2e)

18600

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

18600

Credits cancelled

No

Purpose, e.g. compliance

Compliance

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
- Drive energy efficiency
- Drive low-carbon investment
- Identify and seize low-carbon opportunities

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)

Variance of price(s) used

Current fair market value of EUAs. Dependent on market fluctuations.

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 its global CO2 reduction target 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)

66

% 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 66% of our spend and 60% 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 2018, 81% 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; the % of responding suppliers who invested in emissions reduction initiatives also increased over that time frame, from 59% to 60%. Suppliers reporting intensity targets also increased from 52% to 53%.

Comment

Our connection to other frameworks includes UN SDG 12-Responsible Consumption and Production.

C12.1c

(C12.1c) 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.

Our connection to other frameworks includes UN SDG 12-Responsible Consumption and Production.

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, MOF, etc.) on climate change through the Canadian Vehicle Manufacturers Association (CVMA).	Legislation is final. Ongoing efforts relate to minimizing the impact of cap and trade program on all 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, in a Medium.com post by Bill Ford and Jim Hackett titled “A Measure of Progress,” our leadership made our policy intentions clear: “We support increasing clean car standards through 2025 and are not asking for a rollback. We want one set of standards nationally, along with additional flexibility to help us provide more affordable options for our customers. We believe that working together with EPA, NHTSA and California, we can deliver on this standard.”

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, Hyundai, 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 82 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

2018-Annual-Report.pdf

Page/Section reference

2018 Annual Report includes Strategy, Governance, Risks and Opportunities, pages 6-10, 13-19
(https://s22.q4cdn.com/857684434/files/doc_financials/2018/annual/Final-Annual-Report-2018.pdf)

Content elements

Governance

Strategy

Risks & opportunities

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

2018 Ford 10K.pdf

Page/Section reference

2018 10K – includes Governance, Strategy, Risks and Opportunities, pages 6-27

Content elements

Governance

Strategy

Risks & opportunities

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Ford Sustainability Report 2018_2019.pdf

Page/Section reference

Includes Strategy, Governance, Risks and Opportunities, Targets and Reporting (<https://corporate.ford.com/microsites/sustainability-report-2018-19/index>).

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

Other, please specify (Task Force on Climate Related Financial Disclosures (TCFD), Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB Index))

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

Ford-Motor-Company_2019 Proxy Statement.PDF

Page/Section reference

2019 Proxy Statements includes Governance, Strategy, Risks and Opportunities https://s22.q4cdn.com/857684434/files/doc_financials/proxy/2019/Ford-Motor-Company_DEF-14A.PDF

Content elements

Governance

Strategy

Risks & opportunities

Other metrics

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

sr18-climate-change-scenario-2019.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-2018-19/assets/files/sr18-climate-change-scenario-2019.pdf>

Content elements

Other metrics

Other, please specify (Climate Change Strategy, Operations, Policy, Climate Change Scenario Planning, Business Strategy)

Comment

This is the first release of this report.

C14. Signoff

C-FI

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

C14.1

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

	Job title	Corresponding job category
Row 1	President, Automotive Ford Motor Company. Joe Hinrichs oversees global automotive business in North and South America, China, Europe and Intl. Markets Group & reports to Jim Hackett, President and CEO.	President

SC. Supply chain module

SC0.0

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

Ford Motor Company is a global automotive company based in Dearborn, Michigan with 61 plants and about 196,000 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”). 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 Accord. 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 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, Responsible Consumption and Production, and Climate Action.

Our Aspirational Goals include 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, supporting CO2 reductions consistent with the Paris Climate Accord, 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. Our future is already in motion – we are moving people more efficiently and sustainably. 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.

SC0.1

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

	Annual Revenue
Row 1	160330000000

SC0.2

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

Yes

SC0.2a

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

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	US	3453708600

SC1.1

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

Requesting member

AT&T Inc.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

816.96

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO₂ footprint results from the in-use phase of our products by our customers. Total Emissions: 1172.16 metric tons Scope 1: 355.2 Scope 2: 816.96

Requesting member

BT Group

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

2.3

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 3.30 metric tons
Scope 1: 1.0 Scope 2: 2.3

Requesting member

Grupo CCR

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has no records of CCR purchasing Ford vehicles in the 2018 CY

Requesting member

Deutsche Telekom AG

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

6.44

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 9.24 metric tons
Scope 1: 2.8 Scope 2: 6.44

Requesting member

Eaton Corporation

Scope of emissions

Scope 2

Allocation level

Please select

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

64.86

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 93.06 metric tons
Scope 1: 28.2 Scope 2: 64.86

Requesting member

Endesa

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

82.34

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Endesa Energia Total Emissions: 82.34 metric tons Scope 1: 35.8 Scope 2: 82.34

Requesting member

Fiat Chrysler Automobiles NV

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has no records of Fiat Chrysler purchasing Ford vehicles in the 2018 CY

Requesting member

Jaguar Land Rover Ltd

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has no records of Jaguar Land Rover purchasing Ford vehicles in the 2018 CY

Requesting member

National Grid PLC

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

36.34

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 52.14 metric tons
Scope 1: 15.8 Scope2: 36.34

Requesting member

Philip Morris International

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

271.86

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and

energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 390.06 metric tons Scope 1: 118.2 Scope 2: 271.86

Requesting member

U.S. General Services Administration - OMB ICR #3090-0319

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

8285.06

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 11887.26 metric tons Scope 1: 3602.2 Scope 2: 8285.06

Requesting member

Walmart, Inc.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

104.88

Uncertainty (±%)

1

Major sources of emissions

Scope 2 emissions from combustion of mobile sources

Verified

No

Allocation method

Allocation based on the number of units purchased

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

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers. Total Emissions: 150.48 metric tons Scope 1: 45.6 Scope 2: 104.88

SC1.2

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

Ford Sustainability Report: <https://corporate.ford.com/microsites/sustainability-report-2018-19/index.html>

Ford Sustainability Report Operations: <https://corporate.ford.com/microsites/sustainability-report-2018-19/operations/index.html>

Ford Sustainability Report Emissions per Vehicle Produced: <https://corporate.ford.com/microsites/sustainability-report-2018-19/performance-data-reporting/operations/energy.html#d>

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	The range and geographic diversity of the products purchased by these customers makes this infeasible to overcome.

SC1.4

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

No

SC1.4b

(SC1.4b) Explain why you do not plan to develop capabilities to allocate emissions to your customers.

Ford has a robust environmental management system (EMS) for tracking the Scope 1 and 2 emissions from our operations and energy use. Assigning a level of Scope 1 and Scope 2 to this group of customers (individually) results in a statistically insignificant number /allocation per customer. However, Ford did assign allocations to the customers as noted in SM1.1. Ford understands that the largest part of our CO2 footprint results from the in-use phase of our products by our customers.

SC2.1

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

SC2.2

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

No

SC3.1

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

No

SC3.2

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

No

SC4.1

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

No, I am not providing data

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms