

C0. Introduction

C0.1

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

General Motors Company ("GM") is a global company committed to delivering safer, better and more sustainable ways for people to get around. With global headquarters in Detroit, Michigan, GM employs 155,000 people in over 300 facilities across five continents.

GM offers a comprehensive range of vehicles and services in more than 84 countries around the world. We have manufacturing, assembly, distribution, office or warehousing operations in 29 countries, including equity interests in associated companies, which perform manufacturing, assembly or distribution operations. The largest national market for our products is China, followed by the U.S., Brazil, Canada and Mexico. Along with its strategic partners, GM produces cars and trucks, and sells and services these vehicles through the following brands: Chevrolet and Cadillac globally, and Baojun, Buick, GMC, Wuling, OnStar, and Cruise in certain regions or specific countries.

GM also maintains equity stakes in major joint ventures, including Ultium Cells, SAIC-GM and SAIC-GM-Wuling in China, and joint ventures in GM Korea, as well as subsidiaries such as OnStar, a recognized industry leader in vehicle safety, security, and information services, Cruise, a leader in autonomous driving technology, and GM Financial, which offers Automotive financing services.

More information is available at www.gm.com and media.gm.com.

GM's commitment to sustainability applies to every part of our business and creates value for customers. It underscores GM's philosophy of "Customer-Driven Sustainability" – an approach for meeting customers' needs through sustainability by making the mobile experience safer, more efficient, and better integrated with everyday life. As part of that commitment and philosophy, GM continually assesses and takes steps to reduce the environmental impact of its products and operations.

For example, GM is focusing on energy management; carbon and waste intensity reduction; resource preservation; and developing more efficient vehicles through our technological advances, global scale and employee innovation. These areas help the company reduce its environmental footprint and share best practices worldwide for broad results.

Sustainability is also an important part of GM's people and culture. The company integrates sustainability across every business function and through each level of the organization. GM is actively engaged in cross-functional efforts to seize environmental and social opportunities to improve our Company and the communities in which we operate.

GM's Guiding Environmental Commitments are the foundation of this policy and were established from the core Environmental Principles and values that were in place for more than 25 years. GM's Guiding Environmental Commitments now serve as a guide for all GM employees worldwide. GM is a signatory to the United Nations Global Compact, which endorses a framework of principles in the areas of human rights, labor, the environment, and anti-corruption. In 2021, GM signed the UN Global Compact - CEO Water Mandate to support global water security.

GM's commitment supports the Global Compact's ten principles and the company's intent to maintain the principles and to evaluate related global best practices that may be applicable to GM. Of these ten principles, Environment is specifically tied to Principles 7, 8 and 9, which state: • UNGC Principle 7 – Businesses should support a precautionary approach to environmental challenges. • UNGC Principle 8 – Businesses should undertake initiatives to promote greater environmental responsibility. • UNGC Principle 9 – Businesses should encourage the development and diffusion of environmentally friendly technologies. GM's Guiding Environmental Commitments encourage environmental consciousness in both daily conduct and in the planning of future products and programs. We are dedicated to:

-Preventing deforestation, conserving water, caring for natural resources in and around our facilities and the communities where we operate.

-We believe climate change is real and are committed to the public disclosure of our greenhouse gas emissions and taking actions to reduce them.

-Renewable Energy We are committed to using renewable energy at our facilities and sites globally and will advocate for policies that promote renewable energy use and demand.

General Motors Company is reporting greenhouse gas emissions (GHG) to CDP using the GHG Protocol, unless noted otherwise, for operations (Scope 1 & 2) where we have operational control for GHG emissions, owned or leased facilities, and joint ventures as applicable, as well as for our indirect emissions (Scope 3) from upstream and downstream activities. Our operations are managed regionally in North America, South America, and International Operations (rest of world) and will be reporting Scope 1 and 2 emissions by these regions and company wide for Scope 3.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2020	December 31 2020	No	<Not Applicable>

C0.3

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

- Argentina
- Brazil
- Canada
- Chile
- China
- Colombia
- Ecuador
- Egypt
- Mexico
- Republic of Korea
- United States of America

C0.4

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

- USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

- Operational control

C-T00.7/C-TS0.7

(C-T00.7/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	(i) The Governance and Corporate Responsibility Committee (GCRC) of the GM Board of Directors (ii) is comprised of independent directors. Key responsibilities of the GCRC include the identification of individuals qualified to serve as members of the Board; oversight of GM's corporate governance structure, which is important for long-term environmental, social and corporate governance ("ESG") success; and developing GM's policies and strategies related to Sustainability, which is achieved through a standing ESG agenda item each committee meeting. The GCRC's input is valuable as GM further integrates sustainability into its business strategy and addresses climate change on its drive toward a future of zero emissions. GCRC oversight and advice to management in the past 18 months led to a sustainability strategy resulting in theses GM actions: 1.) an aspiration to be carbon neutral in our global products and operations by 2040, 2.) setting of science-based targets that align with the most ambitious goals of the Paris Agreement (SBTi approved GM's targets in April, 2021) , 3.) an aspiration to eliminate tailpipe emissions from new light-duty vehicles by 2035, and 4.) to source 100% renewable energy to power our U.S. facilities by 2030 and our global facilities by 2035.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – some meetings	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Reviewing and guiding risk management policies</p> <p>Monitoring implementation and performance of objectives</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<Not Applicable>	<p>The Governance and Corporate Responsibility Committee (GCRC) of the Board of Directors of General Motors assists the Board in its oversight of the Company’s governance structures, programs, and policies. It brings to the attention of the Board and management, as appropriate, current and emerging global political, social, and policy issues that may affect the business operations, profitability, or public image or reputation of the Company. The GCRC oversees global public policy matters as well as specific functions of the Company, as appropriate, including strategy, action plans, and risk management. Company functions reviewed by the GCRC include Legal, Global Public Policy, and Sustainability, including climate change, corporate social responsibility, and philanthropic activities. GCRC receives regular reports from the Strategic Risk Management (SRM) team that has risk management responsibility and is supported by the Risk Advisory Council (RAC)—executives who directly report to the Senior Leadership Team (SLT). The GCRC reviews and guides GM’s strategy related to Climate Change as evidenced by our future product planning for decarbonization. Over the past 12 months, we have made multimillion dollar investment announcements for EV manufacturing infrastructure, battery technology and the development of new EV models, with plans to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025. We developed a new, highly flexible, global EV platform powered by our proprietary Ultium batteries, which will be mass produced through Ultium Cells, our joint venture with LG Energy Solution. We are also investing in 3 assembly plants to produce our new EVs. Beginning in 2021, our EV portfolio will begin to expand with launches by GMC, followed by launches by Cadillac, Chevrolet, and Buick in future years. We also address barriers to EV adoption by providing customers with easy access to charging stations, adding charging connectors at our own facilities and engaging with regulators on the need for a National Zero Emissions Vehicle program in the U.S.</p>

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify (Executive Vice President of Global Manufacturing)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	More frequently than 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).

GM envisions a world with zero crashes, to save lives; zero emissions, so future generations can inherit a healthier planet; and zero congestion, so customers get back a precious commodity -- time.

GM is focused on strengthening its core business of light-duty vehicles, while also working to lead the transformation of personal mobility through advanced technologies like connectivity, electrification, autonomous driving, and ride sharing. GM has also established a strategic direction based on putting the customer at the center of everything the Company does, and we aspire to delight our customers through our zero/zero/zero future.

GM's operations greenhouse gas (GHG) emissions are about 85% of the total; therefore, GM's Executive Vice President of Global Manufacturing who reports to the CEO and is on the Senior Leadership team (SLT) along with the CEO is key to GM's response to climate related issues. In 2019, GM established its first Chief Sustainability Officer (CSO), who reports to the Executive VP of Global Manufacturing.

The Board of Directors is briefed at least annually on Environmental issues through interaction with the GCRC and the entire GM Board regularly receives updates on the Company's transition to electric vehicles. The GCRC and SLT receive updates from GM's Sustainability Office (SO) encompassing all aspects of GM's sustainability-related business with daily functional lead from the CSO. The SO solicits feedback from Internal and External advisory groups related to Climate Change issues.

The SLT and Executive Vice President of Global Manufacturing receives regular updates and is involved in key decisions that further our long-term strategic objectives including our efforts to reduce GHG emissions through our transition to an all electric future with zero emissions. As an example, GM's updated Renewable Energy goal (RE-100) for operations was pulled forward from 2050 to 2035 and was reviewed by the CEO, CSO, and Executive Vice President of Global Manufacturing and approved. On a monthly basis GM's performance to its public energy and water goals, which are climate change related, are presented by the CSO to the Manufacturing Leadership Team, led by the Executive VP of Global Manufacturing. If targets are not on the pathway, countermeasures are developed at the plant level and reviewed by the Manufacturing Leadership Team. An example of a countermeasure was increased attention to shutdown energy as a work stoppage caused our pathway to exceed our target in 2020 due to the global pandemic. With attention to shutdown energy with daily monitoring, we were able to minimize the impact to energy targets.

GM also has a Risk & Cybersecurity Committee of the Board that is responsible for overseeing GM's management of enterprise-level risks. The Strategic Risk Management (SRM) team, led by an executive director with dedicated resources, has risk management responsibility and is supported by the Risk Advisory Council (RAC)—comprised of executives of the company. A global network of executives representing GM's key functions and markets are given additional responsibilities as risk officers to support the overall SRM program and process. GM's risk and opportunities identification process is as follows:

- RAC and Risk officers appointed
 - Annual identification, evaluation, and assessment of Company and asset risks and opportunities.
 - Ongoing mitigation plan development and monitoring by RAC and Risk Officers with approval by the SLT.
- (i) Risks and opportunities are categorized based on frequency, velocity, and impact on financials, operations, reputation, etc.
- All top risks have approved mitigation plans, and are reviewed regularly by the SLT and the Risk & Cybersecurity Committee of the Board.
 - All other risks have either an approved mitigation plan and are reviewed at least once a year by the SLT, or, after being fully analyzed, are put on a "watch list" and are monitored by the risk officer and their respective SLT member.

(ii) Asset level risks have mitigation plans that are the responsibility of local management. Exposure to and experience with catastrophic risk or losses from climate change or other natural events are continuously analyzed and reviewed for ongoing operations and when evaluating new sites and selecting suppliers. Asset level risks are generally those that are anticipated to occur with regular or high frequency but have a low impact on the Company and can be managed locally. For Manufacturing, each site has a Plant director (PD) that has profit and loss responsibility for operations. PD often need support for asset level risk and rely on the Manufacturing Leadership Team (MLT), comprised of the Executive VP for Global Manufacturing, regional VPs, the CSO, and other resources for risk management and action planning and implementation. The MLT has subject matter experts in risk management and sustainability as resources to PD.

C1.3

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

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

C1.3a

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

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Corporate executive team	Monetary reward	Emissions reduction project Emissions reduction target	GM introduced its vision of a future with zero crashes, zero emissions, and zero congestion in 2017. In a related action, GM updated its executive compensation program in 2020 to continue its leaders' focus on the key areas that both drive the business forward and align to the short-term and long-term interests of our shareholders. Accordingly, GM's Short-term Incentive Plan was modified to include an individual performance component weighted at 25%, including results that had a positive impact on Environmental, Social, and Governance (ESG) measures. For example, as highlighted in GM's 2020 Proxy statement, GM CEO's compensation evaluation included performance to 2020 strategic objectives. 2020 executive compensation was based, in part, on actions taken in furtherance of the CEO's transformational vision of zero crashes, zero emissions, and zero congestion for the future of GM, in alignment with our core strategic objectives. In 2020, this included: • Joint venture with LG Energy Solution to build a plant to mass-produce battery cells for an all-electric future • Enabling access to numerous charging ports through collaborations with EVgo, ChargePoint, and Greenlots, the largest collective EV charging network in the U.S., and • Announcing a collaboration with Bechtel to build a public facing EV fast charging infrastructure in the U.S. • Continuing to execute our global electrification plan through the launch of the 2022 Bolt EUV, announcement of the-- GMC HUMMER EV, an all electric Cadillac LYRIQ, Chevrolet Silverado electric pickup truck, and the Cruise Origin. The Ultium global architecture will be flexible and versatile, allowing us to build everything in our portfolio from just three drive units. Another example in our operations is that our Business Unit managers and Plant Directors, must meet certain Energy targets for their respective facilities as one of their goals that relates to their individual compensation. Individual performance is based on GM's "Commitment and Accountability Partnership" or CAP system for performance evaluation and compensation. CAP goals are set at the beginning of the year and reviewed every 6 months for performance.

C2. Risks and opportunities

C2.1

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

Yes

C2.1a

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

	From (years)	To (years)	Comment
Short-term	1	3	Short term plans include annual budgets for Capex and Opex.
Medium-term	3	5	GM's Mid-term plan includes 3-5 years of budgets for resources and funds.
Long-term	5		Long term is open-ended and is extended based on the type of risk or opportunity. As an example, GM's RE-100 commitment extends to 2035 as well as our Science Based Targets for Scope1&2 (operations) and Scope 3 Use of sold products (vehicles).

C2.1b

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

Within our enterprise risk management process, GM's risk assessment process includes both a quantitative and qualitative assessment of risks and opportunities. From a quantitative perspective, GM evaluates risks and opportunities based on their potential impact on certain key financial statement amounts and operating results (e.g., assets, revenues, earnings, cash flow, etc.). From a qualitative perspective, GM evaluates risks and opportunities based on the consideration of all of the other relevant facts and circumstances, including strategic significance, potential impact on reputation, and probability of occurrence. For example, while the water-related risks at any individual GM facility may not be substantive to GM as a whole, GM could face a substantive water-related risk related to its ability to build new manufacturing capacity in regions without sufficient water supply to support necessary production volumes. Therefore, risks identified in this report as having a "substantive" impact will vary from risk to risk in terms of quantitative and qualitative perspectives. The use of "significant," "substantive," "material," or "materiality" in this report and our other sustainability reporting is not related to or intended to convey matters or facts that could be deemed "material" to a reasonable investor as referred to under U.S. securities laws or similar requirements of other jurisdictions.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Management of GM's climate-related risks and opportunities ultimately resides with GM's Chairman and Chief Executive Officer, who leads our Senior Leadership Team (SLT) and Board of Directors (BoD). Climate change has been incorporated into our enterprise risk management process. This designation ensures that these issues are at the forefront of daily decision-making and that we manage them at the highest levels of the organization. The Cybersecurity and Risk Committee of the Board is responsible for overseeing GM's management of enterprise-level risks. The Committee is supported by the Chief Auditor, who is supported by a Senior Manager of Strategic Risk Management (SRM) and their risk team that is fully dedicated to risk management at GM. Risks and opportunities are categorized based on frequency, velocity, and impact on financials, operations, reputation, etc. - All enterprise risks have approved mitigation plans and are reviewed regularly by the SLT and the Board. All other risks have either an approved mitigation plans and are reviewed at least once a year by the SLT. A global network of executives representing GM's key functions and markets are given additional responsibilities as risk officers to support the overall SRM program and process. The process by which enterprise risks are managed involves 6-steps, starting with risk identification. Risk Identification encompasses multiple inputs including external research, corporate surveys and interviews with the senior leadership team, and risk identification workshops. This process occurs on an annual basis. SRM also manages emerging risks for GM, and the process for identification occurs on a quarterly basis. Emerging risks are monitored on a quarterly basis to evaluate if they are eligible to transform into enterprise risks. Risk are evaluated and finalized based on disruption potential and probability of occurrence. The next step of enterprise risk management is assignment of risk ownership. Following the identification of risks, owners are assigned to ensure effective management and accountability. The assignment of ownership is based on the nature of the risk and areas of the enterprise that are deemed most vulnerable. Upon assignment of ownership, owners embark on an exploration of existing risk responses. Risk owners are responsible for investigating established relevant controls that work to minimize the disruption potential, if the risk materializes. Following the exploration of existing risk responses, the identified risks are evaluated to determine the revised level of disruption and timing, considering existing controls. This process includes external research, internal assessments, interviews and, cross-functional workshops. Cross-functional workshops include Game Theory, War Games, Scenario Planning, Pre-Mortems and more. The revised analysis of the risks allows the owners to develop effective mitigation plans to further minimizes GM's vulnerability by reducing the disruption potential of the identified risk. Finally, risks are continuously monitored to stay abreast of the changing risk landscape and determine when mitigation plans need to be triggered. Reporting to the CEO, CFO, and the Board are also conducted on a regular basis to ensure leadership is fully aware of the risk's development and to ensure comfort with the controls in place to mitigate the potential disruption. Each month, a business unit's SLT member, RAC member, and other key executives review how risk management is being integrated into strategic planning. As an example, a cross-functional climate change scenario workshop in 2018 helped us assess the risks, challenges and opportunities associated with various 2-degree warming scenarios (2DS). The workshop consisted of a three-step process including exploring uncertainties and defining success in the future world; answering questions to shape each scenario; and performing an analysis to determine what GM should be doing now to influence our future. In 2019, we conducted an EV workshop to update the strategy developed from the scenario analysis results into our short, medium, and long-term planning. An example case study that shows the process applied to a transitional risk related to The California Air Resource Board's (CARB) latest requirements that include increasing Zero Emissions Vehicles (ZEVs) offered for sale in California and ZEV volumes for 2018 model year and later. The US Clean Air Act permits states with air quality compliance issues to adopt California emission standards in lieu of federal requirements; 13 states use these standards, 11 of which have adopted ZEV requirements. Using the 2DS Scenario analysis, described above, we identified this risk as Medium-term, likely to occur with Medium-high impact. Our mitigation approach includes allocating more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025 as we have announced. By 2025, we intend to sell a million EVs per year in our two largest markets – North America and China. Manufacturing Leadership Teams - While the majority of GM's carbon footprint results from the use of our vehicles, a category of Scope 3 emissions, the scale of our manufacturing operations also presents significant opportunities to mitigate climate change risk with emissions reduction. On a monthly basis, GM's progress toward our public energy, emissions and water goals, all of which are climate-related, are reviewed by the Manufacturing Leadership Team (MLT). If actuals are not meeting our defined pathway, countermeasures are developed at the plant level and reviewed by the MLT. Local Management- Asset-level risks have mitigation plans that are the responsibility of local management. Exposure to and experience with catastrophic risk or losses from climate change or other natural events are continuously analyzed and reviewed for ongoing operations and when evaluating new sites and selecting suppliers. A case study related to physical risk of climate change was identified using the WRI Aqueduct model applied to all of our global assembly plants. We identified Extreme Water Risk (>80%) at the locations of two of our three assembly plants in Mexico. Our approach to mitigate this risk is that GM has integrated water management into our annual business planning process and has set a 2035 target to reduce the water intensity for our operations by 35 percent compared to a 2010 baseline. Also, GM installed Zero Liquid Discharge systems to minimize the reliance on well water withdrawal. The system purifies and transforms wastewater into reusable water for the facility's paint and machining processes, as well as irrigation. Additionally, we expanded our capacity to reuse process wastewater as process water at our facilities in Silao and Ramos Arizpe, Mexico to reduce water stress on non-renewable wells.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current regulation Relevant, always included Our products are subject to extensive laws, governmental regulations and government policies that can significantly increase our costs and affect how we do business. We are significantly affected by US NHTSA's Corporate Average Fuel Economy (CAFE) standards that can increase costs related to the production of our vehicles and affect our product portfolio. GM's US vehicle sales volume is 37% of our total vehicle sales globally. Meeting or exceeding these regulations is costly and often technologically challenging with respect to mandated emissions and fuel economy standards, especially where standards may not be harmonized across jurisdictions. GHG and fuel consumption standards have become more stringent to meet government policy priorities. We anticipate that the number and stringency of these regulations, and the related costs and changes to our product portfolio, may increase significantly in the future. These government regulatory requirements could significantly affect our plans for global product development, and given the uncertainty surrounding enforcement and regulatory definitions, may result in substantial costs, including civil or criminal penalties. In addition, an evolving but un-harmonized regulatory framework may limit or dictate the types of vehicles we sell and where we sell them, which can affect revenue. Thus our shift to electric vehicles is an important mitigator of this risk. The Board has the overall responsibility for risk oversight with a focus on the most significant risks facing the company such as current regulations related to GM's business. GM has a comprehensive risk management plan in place. Effective risk management is the responsibility of the CEO and other members of management, including the senior leadership team (SLT). Our Board implements its risk oversight function both as a whole and through delegation to Board Committees, particularly the Risk & Cybersecurity Committee. Each of the Board Committees is responsible for risk management practices for categories of risks relevant to its functions.
Emerging regulation	Relevant, always included	Emerging regulation Relevant, always included We see autonomous technology leading towards a future of zero congestion, zero emissions and zero crashes, since, according to the National Highway Traffic Safety Administration (NHTSA), more than 90% of crashes are caused by driver error. We are among the leaders in the industry with significant global real-world experience in delivering connectivity, safety, and security services to millions of customers through OnStar, LLC (OnStar) and advanced safety features that are the building blocks to more advanced automation features that are driving our leadership position in the development of autonomous technology. An example of advanced automation is Super Cruise, a hands-free driving customer convenience feature that is available on the 2019 Cadillac CT6 sedan and expanding to additional vehicles within our products, including the electric Bolt EUV. Many of our advanced technologies, including autonomous, present novel issues with which domestic and foreign regulators have only limited experience and will be subject to emerging regulation and evolving regulatory frameworks. Any current or future regulations, could impact whether and how these technologies are designed and integrated into our products, and may ultimately subject us to increased costs and uncertainty. The Board has the overall responsibility for risk oversight with a focus on the most significant risks facing the company such as emerging regulations related to GM's business. GM has a comprehensive risk management plan in place. Effective risk management is the responsibility of the CEO and other members of management, including the senior leadership team (SLT). Our Board implements its risk oversight function both as a whole and through delegation to Board Committees, particularly the Risk Committee for emerging regulations. Each of the Board Committees is responsible for oversight of risk management practices for categories of risks relevant to its functions. Our entire Board also receives public policy and legal updates and updates on our autonomous developments such as Super Cruise and at our majority-owned subsidiary, Cruise.
Technology	Relevant, always included	Technology in our products and facilities is included in Climate Change risk assessments on a case by case basis. An example workshop, sponsored by GM's corporate secretary and the head of GM's product portfolio planning, and led by Strategic Risk Management and Sustainability organizations — brought together a broad, cross-functional team, from public policy to global propulsion systems to business intelligence. Goals included developing and understanding a range of different world scenarios; identifying risks, opportunities and success factors for GM; and making recommendations for GM to analyze, prepare, adapt and act. The Climate Workshop (Scenario Analysis) used a 2 degree scenario. The time frame of the analysis was out to 2030. The inputs for the analysis included a number of trends and forecasts such as vehicle sales, technology and innovation, policies and regulations, energy, consumer behaviors, etc. One of the key findings from the Scenario Analysis is that the world on a 2 degree C path has implications for key drivers of GM's technology that include vehicle fuel efficiency, vehicle-to-vehicle/customer/infrastructure connectivity, and advance vehicle technology. The transition of a majority of GM vehicles from internal combustion engine technology to an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment risk in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025.
Legal	Relevant, always included	Legal Relevant, always included In the current uncertain regulatory framework, environmental liabilities for which we may be responsible and that are not reasonably estimable could be substantial. Alleged violations of safety or emissions standards could result in legal proceedings, the recall of one or more of our products, negotiated remedial actions, fines, restricted product offerings, or a combination of any of those items. Any of these actions could have substantial adverse effects on our operations including facility idling, reduced employment, increased costs, and loss of revenue. We are often subject to legal proceedings and governmental proceedings and investigations involving various issues, including emissions matters (both in the U.S. and elsewhere). The Board has the overall responsibility for risk oversight with a focus on the most significant risks facing the company such as legal risks related to GM's business. GM has a comprehensive risk management plan in place. Effective risk management is the responsibility of the CEO and other members of management, including the senior leadership team (SLT). Our Board implements its risk oversight function both as a whole and through delegation to Board Committees, particularly the Risk & Cybersecurity Committee. GM Legal team, led by an Executive Vice President, Global Public Policy and General Counsel ensures that legal risks are managed at the business unit level. The Executive Vice President, Global Public Policy and General Counsel also regularly reports to the full Board on legal matters.
Market	Relevant, always included	Market Relevant, always included Marketing of our products is included in Climate Change risk assessments on a case by case basis. An example workshop, sponsored by GM's corporate secretary and the head of GM's product portfolio planning, and led by Strategic Risk Management and Sustainability organizations — brought together a broad, cross-functional team, from public policy to global propulsion systems to business intelligence. Goals included developing and understanding a range of different world scenarios; identifying risks, opportunities and success factors for GM; and making recommendations for GM to analyze, prepare, adapt and act. The Climate Workshop (Scenario Analysis) used a 2-degree scenario. The time frame of the analysis was out to 2030. The inputs for the analysis included several trends and forecasts such as vehicle sales, technology and innovation, policies and regulations, energy, consumer behaviors, etc. One of the key findings is that the world on a 2-degree C path has implications for key drivers of GM's marketing related to vehicle fuel efficiency, vehicle-to-vehicle/customer/infrastructure connectivity, and advance vehicle technology. The transition of a majority of GM vehicles from internal combustion engine technology to an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment risk in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025. GM's transition to an all EV portfolio is a significant market risk for GM as the future marketplace for the one million EVs, that GM intends to produce by 2025, is uncertain and GM is working hard to develop customer interest and acceptance.
Reputation	Relevant, always included	As we develop electric vehicles, we are mindful of the raw materials necessary to support their deployment on a commercial scale. As with all raw material inputs for our vehicles, some of these materials involve inherently higher risks, such as cost, supply availability, reputational and human rights risks. The identification of these risks is part our product development process, and we work to reduce these risks through a variety of methods, including re-engineering of components, supplier diversification, our supplier code of conduct, our human rights policy, and reuse and recycling efforts. Concerns about advanced technologies like EV and autonomous, whether raised internally or by regulators or consumer advocates, and whether or not based on scientific evidence, can result in product delays, recalls, lost sales, governmental investigations, regulatory action, private claims, lawsuits and settlements, and reputational damage. These circumstances can also result in damage to brand image, brand equity, and consumer trust in the Company's products and ability to lead the disruption occurring in the automotive industry. We currently source a variety of systems, components, raw materials and parts from third parties. These items may have performance, quality, or reputational issues that could harm our reputation and cause us to incur significant costs. An example of GM's risk mitigation plan is in the design of GM's new Ultium batteries that boast a proprietary, low-cost chemistry and an easy-to-manufacture design. These batteries will have the high-nickel and low-cobalt content — reduced by 70 percent — in a large format pouch cell, which requires less wiring than smaller cells and reduces the raw material reputational risk to GM. The built-in battery management system eliminates 80 percent of the battery pack's wiring as compared to those in the original Bolt EV. Our JV with LG Energy Solution to develop and mass produce battery cells is expected to drive cell costs below \$100 per kWh. The Board has the overall responsibility for risk oversight with a focus on the most significant risks facing the company such as reputational risk related to GM's business as described above. GM has a comprehensive risk management plan in place. Effective risk management is the responsibility of the CEO and other members of the SLT.
Acute physical	Relevant, always included	Acute physical Relevant, always included Acute physical considerations of climate change in our facilities are included in risk assessments on a case by case basis. An example is severe drought, as described by The National Water Commission (Conagua), who warned of the drought suffered by more than 2,000 municipalities across Mexican territory, like at our GM Assembly plants at San Luis Potosi, Ramos Arizpe and Silao, Mexico. As Mexico production is important to GM, accounting for approximately 12% of GM's global production, we developed a risk mitigation plan. The GM Manufacturing team performed a short term risk assessment of water scarcity and elected to increase the capacity of water reuse equipment and operate it to mitigate the physical drought risks in Silao and Ramos Arizpe. The Manufacturing Leadership Team at GM manages mitigation of acute physical risks associated with facilities described above. If material to the business, the Executive Vice President of Global Manufacturing, also a member of the SLT, would work with the Board Risk & Cybersecurity Committee for assistance, if needed.
Chronic physical	Relevant, always included	Chronic physical considerations for our facilities from climate change are included in risk assessments on a case by case basis. As Mexico production is important to GM, accounting for approximately 12% of GM's global production, we developed a risk mitigation plan. At our Silao Assembly plant in Mexico, where non-renewable wells were identified as stressed, GM installed additional water reuse equipment resulting in GM increasing the amount of recycled water that will reduce the water stress risk at Silao. The Manufacturing Leadership Team at GM manages mitigation of Chronic physical risks associated with facilities described above. If material to the business, the Executive Vice President of Global Manufacturing, also a member of the SLT, would work with the Board's Risk & Cybersecurity Committee for assistance, if needed.

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) 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?

Downstream

Risk type & Primary climate-related risk driver

Current regulation	Mandates on and regulation of existing products and services
--------------------	--

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Our global product portfolio is significantly affected by governmental regulations related to emissions, fuel economy standards and greenhouse gas emissions. Meeting or exceeding many of these regulations is costly and often technologically challenging, especially because the standards are not harmonized across jurisdictions. We anticipate that the number and extent of these and other regulations, laws and policies, and the related costs and changes to our product portfolio, may increase significantly in the future, primarily out of concern for the environment (including concerns about global climate change and its impact). These government regulatory requirements, among others, could significantly affect our plans for global product development and, given the uncertainty surrounding enforcement and regulating definitions and interpretations, may result in substantial costs, including civil or criminal penalties. In addition, an evolving but un-harmonized emissions and fuel economy regulatory framework may limit or dictate the types of vehicles we sell and where we sell them, which can affect our revenues. While we offer a portfolio of cars, crossovers, SUVs and trucks, and we have announced significant plans to design, build and sell a broad portfolio of electric vehicles, we currently recognize higher profit margins on our SUVs and trucks such as Silverado, Sierra, Suburban, and Tahoe. Our near-term success and ability to fund our shift to electric vehicles is dependent upon our ability to sell higher margin vehicles in sufficient volumes. Any near-term shift in consumer preferences toward smaller, more fuel-efficient vehicles (e.g., as a result of concerns about climate change) or in our product portfolio (e.g., to comply with more stringent fuel economy regulations) could impact our ability to sell these vehicles, impacting our revenues and profits, particularly in North America where our profits are most concentrated.

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)

8000000

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 widely depending on various factors, including specific details of the regulation, current market and economic conditions, and our specific strategic response to address and remain in compliance with such regulations. As an example, a regulatory change that impacts 1% of our North America earnings before interest and taxes (EBIT) adjusted could result in an estimated decrease in earnings of approximately \$8 million, based on our reported 2020 EBIT-adjusted for North America and using a one month impact in this example which assumes we would actively monitor the scenario on a monthly basis to adjust and implement appropriate mitigating strategies to limit the impact. Note that this figure does not consider the multifaceted financial impacts that accompany any large initiative that drives change in strategy (including those related to product portfolio) that could be significantly smaller or larger than this example demonstrates.

Cost of response to risk

6200000000

Description of response and explanation of cost calculation

We have institutionalized extensive governance processes that predict, plan, measure and assess our fleet's fuel economy and emissions performance according to established government test procedures on a dynamic country-by-country basis. We dedicate significant resources and use a complex algorithm to calculate the fuel economy of dozens of models sold across developed markets with increasingly stringent regulations, as well as emerging markets that are adopting similar regulations at a rapid pace. These calculations and the subsequent plans around them are an intrinsic part of our business that impacts nearly every operational function, from product development through delivery, on a daily basis. In the near-term, we are committed to improving the efficiency of vehicles that rely on the Internal Combustion Engine (ICE). Continual improvements in vehicle engine and transmission efficiency, as well as vehicle weight, are helping us eliminate material use in manufacturing, while reducing fuel use and costs for customers. As an example, our models containing stop-start technology enable the vehicle's engine to turn off when the car is stopped or idled. These engines provide a fuel economy benefit of between approximately 3% to 5%, tangibly decreasing CO2 emissions for consumers who face extended idle times. In the U.S., to date, stop-start engine technology is expected to save GM customers 1.1 billion gallons of fuel and 10.2 million metric tons of CO2 emissions over the lifetime operations of their vehicles. The cost of response to this risk noted above represents \$6.2 billion in research and development expenses as reported in 2020, which includes costs for research, manufacturing engineering, product engineering and design and development activities primarily related to developing new products or services or improving existing products or services, including activities related to vehicle and greenhouse gas (GHG) emissions control, improved fuel economy, electrification, autonomous vehicles, and the safety of drivers and passengers.

Comment

There are limits on our ability to achieve fuel economy improvements over a given time frame, primarily relating to the cost and effectiveness of available technologies, lack of sufficient consumer acceptance of new technologies and of changes in vehicle mix, lack of willingness of consumers to absorb the additional costs of new technologies,

the appropriateness (or lack thereof) of certain technologies for use in particular vehicles, the widespread availability (or lack thereof) of supporting infrastructure for new technologies and the human, engineering and financial resources necessary to deploy new technologies across a wide range of products and powertrains in a short time. That is why we have institutionalized extensive governance processes that predict, plan, measure and assess our fleet's fuel economy and emissions performance according to established government test procedures on a dynamic country-by-country basis.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

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

Primary potential financial impact

Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

Increases in the frequency of drought conditions can further depress water availability for production in water-stressed areas. GM has production facilities in Mexico at Silao Assembly, San Luis Potosi Assembly, and Ramos Arizpe Assembly, an area that was hit hard by drought in recent years, and there is a risk that increases in the frequency of such events could temporarily disrupt production due to lack of water availability.

Time horizon

Long-term

Likelihood

Very unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

52900000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We estimate the San Luis Potosi Assembly represents approximately 7% of production units of our North America operations. As an example, we estimate a 7% reduction in our production of certain vehicles in North America could approximate a \$52.9 million reduction in earnings before interest and taxes (EBIT)-adjusted, using a one month impact in this example and assuming production could not be recovered. It should be noted that financial impacts vary depending on the plant and vehicles for which production is temporarily stopped.

Cost of response to risk

12200000

Description of response and explanation of cost calculation

GM integrated water management into its annual business planning process and set targets for each facility to reduce water use intensity by 35% by 2035. Reduction methods are implemented at a facility level and include conservation with behavioral activities, improving equipment efficiency, and reuse. When plants are located in water-stressed areas, special consideration is given to water treatment technologies. A Zero Liquid Discharge (ZLD) system was installed at our San Luis Potosi, Mexico facility that produces vehicles and transmissions and is being operated to reuse water in the process, reduce withdrawal from deep wells, and reduce the risk of lack of water for production while providing an opportunity to continue production without interruption. The installed cost was \$12M and ongoing operations are \$200k.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market	Changing customer behavior
--------	----------------------------

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

We believe that the automotive industry will continue to experience significant change in the coming years, particularly as traditional automotive original equipment manufacturers (OEMs) shift resources to the development of electric vehicles and non-traditional participants enter the automotive industry. Industry participants are disrupting the historical business model of our industry through the introduction of new technologies, products, services, direct-to-consumer sales channels, methods of

transportation and vehicle ownership. We have committed to an all-electric future and we expect combining it with autonomous technology to lead to a future of zero crashes, zero emissions and zero congestion. It is a strategic imperative that we succeed in driving the technological disruption occurring in our industry, including consumer adoption of electric vehicles and commercialization of autonomous vehicles. The process of designing and developing new technology, products and services is complex, costly and uncertain and requires extensive capital investment. If we do not adequately prepare for and respond to new kinds of technological innovations, market developments and changing customer needs, our sales, profitability and long-term competitiveness may be harmed.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

91000000

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 widely depending on various factors, including the kinds of technological innovations, market developments, changing customer needs and our specific response to address such factors. As an example, a change to consumer behavior that impacts 1% of our North America earnings before interest and taxes (EBIT) adjusted could result in an estimated annual decrease in earnings of over \$90M, based solely on our reported 2020 EBIT-adjusted for North America. Note that this figure does not consider the multifaceted financial impacts that accompany large changes in consumer behavior that may drive changes in strategy and could be significantly smaller or larger than this example demonstrates.

Cost of response to risk

35000000000

Description of response and explanation of cost calculation

The Board and its Committees receive updates regarding the competitive risks, and directors factor such risks into various strategic considerations, including those related to EV execution, battery cost, autonomous development costs, and product portfolio reviews requiring capital expenditures. The cost of response to mitigate the risk noted above represents our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025, and our plan to introduce 30 new global EVs by the end of 2025. – Some ways in which we are responding to this risk include: • Battery Technology: Our Ultium battery electric architecture will launch on upcoming EVs, is capable of more than 400 miles of GM-estimated range on a full charge, and is flexible, allowing for quick response to customer preferences with a shorter design and development lead-time compared to our internal combustion engine vehicles. • EV Battery Manufacturing Infrastructure: We worked to significantly expand our battery lab in Warren, MI and are working with our joint venture with LG Energy Solution to develop and mass produce battery cells – including the construction of battery plants in Lordstown, OH and Spring Hill, TN. • EV Manufacturing Investments: In 2020, Orion Assembly became GM's first assembly plant 100% dedicated to EV production (e.g., Bolt EV and Bolt EUV), we have planned investments to prepare the Spring Hill Assembly site for EV manufacturing (e.g., Cadillac LYRIQ) and Factory ZERO will produce a variety of all-electric trucks and SUVs (e.g., GMC Hummer EV and EV SUV). • EV Portfolio Expansion: Our portfolio planning team listens to customers to understand their needs in terms of vehicle size, body style, range and more which allows us to develop the best possible value proposition for each EV entry. In our 30 new global EVs to be introduced by the end of 2025, Cadillac, GMC, Chevrolet and Buick brands will all be represented. • We are also advocating for federal, state and local infrastructure policies that support EV deployment. As an example, GM partnered with Qmerit to provide easy access to accredited electricians who can install 240-volt home charging in their area. GM will also cover standard installation of Level 2 charging capability for eligible customers who purchase or lease a 2022 Bot EUV or Bolt EV.

Comment

-As an example, during 2020, the HUMMER EV team cut development time nearly in half by leveraging virtual engineering and the simplicity and flexibility of the Ultium system. -Transforming Mobility: Through Cruise, our majority-owned subsidiary, we plan to develop an integrated network of on-demand AVs in the U.S. Our growing fleet of test vehicles accumulated a significant number of miles in 2020. -Charging Infrastructure: For the past decade, GM has been driving partnerships and collaborative efforts across a vast network of stakeholders to help stimulate the EV market.

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

We expect autonomous technology used in electric vehicles to lead to a future of zero crashes, zero emissions and zero congestion. We believe that building all-electric vehicles with autonomous capabilities integrated from the beginning, rather than through retrofits, is the most efficient way to unlock the tremendous potential societal benefits of self-driving cars. In January 2020, the Cruise Origin was unveiled by Cruise which is being co-developed by GM, Cruise and Honda Motor Company, Ltd.. The Cruise Origin will be built on General Motors' all-new modular architecture, powered by the Ultium battery system. Because more than 90% of crashes are caused by driver error, according to the National Highway Traffic Safety Administration (NHTSA), we believe autonomous technology can help save lives.

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)

30000000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Given the rapidly evolving environment, related technology, market developments and other key considerations, we do not publicly report on the potential financial positive implications of this opportunity at this time. However, recent investments in Cruise by third-party investors brings Cruise's implied valuation to approximately \$30 billion, which is used here to approximate a single point of reference for an estimate of the low range of potential opportunity. We believe that market opportunity of the global autonomous vehicle industry is significant and that our investment in Cruise will provide substantial upside compared to the current implied valuation amount.

Cost to realize opportunity

35000000000

Strategy to realize opportunity and explanation of cost calculation

Cruise is actively testing AVs on public roads in San Francisco, California; Scottsdale, Arizona; and Warren, Michigan. Additionally, through Cruise, our majority-owned subsidiary, we plan to develop an integrated network of on-demand autonomous vehicles in the U.S. Our growing fleet of test vehicles accumulated a significant number of miles in 2020. Given the potential of all-electric self-driving vehicles to help save lives, reshape our cities and reduce emissions, the goal of Cruise is to deliver its self-driving services as soon as possible, with safety being the gating metric. The cost to realize the opportunity noted here represents our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025, and our plan to introduce 30 new global EVs by the end of 2025. This includes our announced \$2.2 billion investment in Factory ZERO, Detroit-Hamtramck Assembly Center – which represents the single largest investment in a plant in GM history – for retooling and upgrades which will position the facility to build EVs at scale. The Cruise Origin, the GMC HUMMER EV pickup and other GM EVs which be built at Factory ZERO.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Move to more efficient buildings

Primary potential financial impact

Reduced direct costs

Company-specific description

Energy Efficiency projects implemented in our manufacturing operations in South Korea resulted in the opportunity to sell carbon credits into the Emission Trading Scheme in South Korea. Implementing energy efficiency in GM operations in Korea is integrated into their business plan. Energy Treasure hunts in GM Korea find opportunities for energy and carbon savings and with implementation of various initiatives - LED lights, compressed air, and building management system improvements, provide savings in cost, carbon emissions reduction, and option to sell excess carbon credits. These initiatives represent an opportunity for us to reduce our operational costs and to sell carbon credits into the marketplace using the Korean Carbon Emission Trading Scheme. In 2020, GM Korea continued to make efficiency improvements of \$2.5M and sold 40,500 metric tons of excess CO2e credits at \$26/ton for a revenue to GM of about \$1.1 M USD bringing the total savings to \$3.6M and cost to implement efficiency at \$2.1M USD

Time horizon

Short-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)

3600000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Cost savings resulting from reduced use of electricity and natural gas in GM Korea operations from the implementation of energy conservation and efficiency measures - LED lights, compressed air and building management, and other efficiency projects resulted in \$2.5M savings in 2020. Additionally, in 2020 we sold \$1.1 M from trading carbon credits into the ETS, partially because of implementing energy conservation measures. We are using the direct sale of CO2e credits and energy savings as a financial benefit in 2020 from energy efficiency, or \$3.6M.

Cost to realize opportunity

2100000

Strategy to realize opportunity and explanation of cost calculation

GM identifies energy and carbon savings opportunities using a standardized Energy Treasure Hunt process as documented by USEPA Energy Star. The opportunities include paint shop optimization, HVAC improvements, lighting, building envelop improvements, and controls. Action plans were developed to implement energy conservation measure opportunities and were implemented to provide cost savings and reduction of carbon emissions at GM South Korea's sites that manufacture vehicles and parts. The process utilized our Energy Star standardized Energy Treasure Hunt process to track progress and measure success. The cost to implement energy conservation measures was \$2.1 M. In 2020, we also conducted multiple Energy and Water treasure hunts in many countries - US, China, and Brazil, sometimes using Virtual Treasure Hunt methods developed in 2020.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

GM estimates that by 2025, the combined market opportunity for parcel, food delivery and reverse logistics in the U.S. will be over \$850 billion. According to the World Economic Forum, demand for urban last-mile delivery, fueled by e-commerce, is expected to grow by 78 percent by 2030, leading to a 36 percent increase in delivery vehicles in the world's top 100 cities. At the same time, this increase in demand is expected to cause delivery-related carbon emissions to rise by nearly one-third. Logistics companies, which manage fleets of many thousands of vehicles, are on the front lines of these challenges, rising to meet demand while addressing the associated increases in emissions and congestion. GM's Global Innovation organization approached this situation through the lens of our vision of a world with zero crashes, zero emissions and zero congestion, imagining what it would take to transform delivery and logistics for an all-electric future and launched BrightDrop, an ecosystem of electric first-to-last-mile products, software and services to empower companies to move goods more efficiently.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

This opportunity is in an early phase, and we do not publicly report on the potential financial positive implications of this opportunity at this time. However, given the potential opportunities within the combined markets for parcel, food delivery and reverse logistics in the U.S. over the coming years, we expect that our BrightDrop business will be well positioned for a substantial portion of this opportunity.

Cost to realize opportunity

35000000000

Strategy to realize opportunity and explanation of cost calculation

In January 2021, we announced a new business, BrightDrop, which will offer an ecosystem of electric first-to-last-mile products, software and services designed to help delivery and logistics companies deliver goods more efficiently. BrightDrop is designed to help businesses lower costs, maximize productivity, improve employee safety and freight security, and operate more sustainably with products that work together intelligently and with zero emissions. BrightDrop's first product to market, the EP1, will be a propulsion-assisted, electric pallet developed to easily move goods over short distances – for example, from the delivery vehicle to the customer's front door. BrightDrop's second product to market will be the EV600 – an electric light commercial vehicle purpose-built for the delivery of goods and services over long ranges. It will combine zero-emissions driving, powered by the Ultium Platform, with a range of advanced safety and convenience features. Supporting these products will be a suite of fleet management tools that enable owners to monitor battery life, vehicle location and more. The cost of response to realize this opportunity noted above represents our intent to

allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025, and our plan to introduce 30 new global EVs by the end of 2025. This includes our recent announcement for planned investment of approximately CAD \$1 billion to convert our CAMI manufacturing plant in Ingersoll, Ontario to produce the BrightDrop EV600 electric cargo van.

Comment

C3. Business Strategy

C3.1

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

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

C3.1a

(C3.1a) Is your organization's low-carbon transition plan a scheduled resolution item at Annual General Meetings (AGMs)?

	Is your low-carbon transition plan a scheduled resolution item at AGMs?	Comment
Row 1	No, and we do not intend it to become a scheduled resolution item within the next two years	

C3.2

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

Yes, qualitative

C3.2a

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

Climate-related scenarios and models applied	Details
2DS	Climate change has been incorporated into our enterprise risk management framework. This designation ensures that these issues are a part of our decision-making processes. We have utilized scenario-planning as a tool to help us assess climate-related risks in alignment with the guidance developed by TCFD. That planning has been based on a key assumption that the world is on a path to limit emissions by 2030 to the extent necessary to limit any global temperature increase to 2 degrees Celsius. Our goal has been to develop an understanding of a range of different world scenarios; identify risks, opportunities and success factors for GM; and make recommendations for GM to analyze, prepare, adapt and act. In the process, we modeled the impact of different scenarios and asked questions such as: • "What types of regulation will govern the sector?" • "What will cities look like?" • "What are the mobility limitations of dense urban communities?" and • "What sort of transportation modes and services, such as ride share, will be most accepted by consumers?" All of our scenarios shared common themes. Within the vehicle market, for example, it was assumed that new passenger vehicles would be required to make faster and greater adjustments than other users of energy and that there would be significant changes in the vehicle ownership paradigm, as well as a decline in the proportion of single-person vehicle miles. Outside the transportation sector, we envisioned significant changes and investments in infrastructure, power grids and power sources; penalties and costs associated with manufacturing and supply chain emissions; and increased accountability in areas such as commodity lifecycles. Our consideration of these scenarios has helped us understand and clarify risks and highlight opportunities, many of which are influencing our strategy today. Some examples include: -Risks/Opportunity for GM products and services -Recent Strategy Developments by GM - "all electric future" -Adoption of new GM business models - partnership with LG Chem Energy Solution for battery production -Continued investment in Cruise, the self-driving vehicle company in which we are majority owners; and the development of the Cruise Origin, which exemplifies our vision for the future of mobility; electric and connected. -Response to new energy vehicle regulations in China. Through our SAIC-GM joint venture, we have committed to 40% of new vehicles introduced in China over the next five years will be EVs. -Focusing on new technologies by shifting capital resources and talent toward vehicle electrification programs. We are allocating more than \$35 billion in capital and engineering resources to EV and AV programs between 2020 and 2025. These investments will allow GM to offer 30 EVs globally by 2025 — and 40% of U.S. entries will be battery electric vehicles by that time. We have accelerated our goal to source electricity from 100% global renewable energy sources from 2040 to 2035, with the interim goal of achieving 100% of U.S. sites by 2030. We also have used scenario planning to build a realistic picture of what the EV market in the U.S. could look like in 2029 based on key uncertainty drivers. That thought process has resulted in potential scenarios considering different circumstances for the world, in which each potential future scenario is a world that has a unique view on customers, technology competitors and the economic and political environment. In summary, scenario planning processes are an example of how GM monitors the real world to understand how assumptions evolve and corresponding changes to strategy are made.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Products and services Yes GM's long term (2025-2050) product design strategy has shifted from internal combustion engine vehicles (ICE) to all electric vehicles consistent with our vision of Zero emissions and decarbonization. Electrification of vehicle propulsion is the most substantial strategic decision that has been influenced by the need to reduce greenhouse gas emissions. Future regulatory risks and business market opportunities, often influenced by the threat of climate change, were key drivers of our strategy of an all-electric future. Our global commitment to realize an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025 to move towards a zero carbon emissions future.
Supply chain and/or value chain	Yes	Life cycle analysis of GM's purchased goods and services for auto parts shows carbon emissions as our number 2 priority after customer's use of our vehicles and the most substantial business decision for climate change in the supply chain area. With electrification and renewable energy in the future, auto parts will be our number 1 priority for carbon reduction. Therefore, our strategy for decarbonization has been influenced to prioritize reduction of supply chain carbon emissions with supplier engagement and sustainable materials. Although our scenario analysis focused on emissions from customer use of sold products, our next highest impact which is life cycle auto parts emissions that is currently 20% of our total carbon footprint. The realization that supply chain emissions could be our next highest priority led to an increase in supplier engagement plans and evaluation of sustainable materials for auto parts to decarbonize. We aspire to increase sustainable materials content of GM auto parts to 50% by 2030 to reduce supply chain impact. Based on the need to increase supply chain engagement to mitigate the risk of climate change, GM announced a goal to ensure 100 percent of targeted GM suppliers are reporting data to CDP Supply Chain by 2022 and to aspire to at least 50 percent sustainable material content in our vehicles by 2030.
Investment in R&D	Yes	R&D is closely aligned with products and services and our vision of Zero emissions and a shift from ICE to all electric vehicles drove a change in R&D with a main focus on electrification. Research and Development usually focuses activities in the 5+ year range for future products and services. Our commitment to electric and autonomous vehicle programs is our most substantial business decision related to R&D and we plan to double the resources allocated to these programs in the next two years. Continued work rests upon 20 years of electrification knowledge and experience and the investment of billions in research and development. We are supporting this transition by shifting approximately 75 percent of our 4,000-person Global Propulsion Systems engineering workforce from internal combustion engines to alternative or electrified propulsion. In 2020, we invested \$6.2 billion USD expense for research and development in Automotive and other cost of sales.
Operations	Yes	Although our operations are only 2% of our carbon footprint, we work to lessen those carbon emissions. Risks and opportunities related to Climate Change, including cost savings, led us to two positive strategic actions in 2020 that were the most substantial business decisions related to climate change risk in our operations. The two actions were 1). Increased energy efficiency with Energy Performance Contracts (EPC) and 2). pulling forward of our RE-100 goal from 2050 to 2035 globally and by 2030 for our US operations. Energy efficiency in our operations is the first pillar of our decarbonization strategy and with a shift of company spend for electric vehicle development and less for operations energy efficiency, we increased our Energy Performance Contract (EPC) activities as internal spend reduced. RE-100 is important to decarbonizing our operations and pulling the goal ahead by 5 years will speed up our decarbonization efforts in operations. Our new absolute carbon goal of 72% reduction, which was approved as a Science Based Target, for operations from 2018 to 2035 is highly dependent on energy efficiency and use of renewable energy (RE). From our life cycle analysis of our top 3 GHG emissions - Vehicle use, supply chain, and operations, renewable energy provides a large impact to carbon reduction. An all EV future is most impactful on decarbonization with high levels of RE based on life cycle studies of upstream and downstream sources. That's why we work with utility companies on Green Tariffs to further increase the availability of renewable energy.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures	Our global commitment to realize an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025. We want to get as many EVs on the road as possible. By mid-decade, our intent is to sell a million EVs per year in our two largest markets: North America and China, where we are working with our joint venture partners. GM's flexibility and engineering focus will drive the scale required to accelerate our path to zero emissions in a profitable and efficient way. In addition, we are leveraging existing assets, such as production tools and body and paint shops, so that economies of scale can be realized with less capital and to further position the first generation of these products for profitability. Though many of the details about our electric future were revealed during EV Week in the first quarter of 2020, we've been preparing for this future for years. We have two decades of electrification knowledge and experience and have invested billions in research and development. This includes a previous \$1.5 billion investment at our Global Technical Center, where we have expanded and enhanced our state-of-the-art battery testing lab, as well as other R&D facilities. The latest expansion brings the facility to more than 100,000 square feet and includes heavy and mild battery abuse test areas and new test chambers. Today, about 60 percent of the work at our Global Technical Center is focused on EV development compared with about 20 percent three years ago. These types of R&D investment are one reason that GM has more than 3,000 global patents related to electrification on file today.

C3.4a

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

Not applicable

C4. Targets and performance

C4.1

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

Both absolute and intensity targets

C4.1a

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

Target reference number

Abs 1

Year target was set

2021

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (market-based)

Base year

2018

Covered emissions in base year (metric tons CO2e)

5687893

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

100

Target year

2035

Targeted reduction from base year (%)

71.4

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

1626737.398

Covered emissions in reporting year (metric tons CO2e)

3813946

% of target achieved [auto-calculated]

46.1431962635742

Target status in reporting year

New

Is this a science-based target?

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

Target ambition

1.5°C aligned

Please explain (including target coverage)

GM met our Scope 1 and 2 GHG 2020 goal in 2017 and developed an absolute goal to 2010-2030, based on science, to limit global temperature rise to below 2 degrees Celsius above pre-industrial levels with a target year of 2030. In 2020, for continuous improvement, we applied for Science Based targets for our global operations using the absolute contraction method and received approval from SBTi organization in April 2021. Energy efficiency in our operations and RE100 will provide the methods to meet our goal in the future. Our Scope 1 & 2 GHG target includes all of our major operations globally, including our JV operations in China and many leased facilities where GM pays utility bills.

C4.1b

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

Target reference number

Int 1

Year target was set

2021

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 3: Use of sold products

Intensity metric

Grams CO2e per kilometer

Base year

2018

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

246.6

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

85

Target year

2035

Targeted reduction from base year (%)

50.4

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

122.3136

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

-50.4

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

242

% of target achieved [auto-calculated]

3.70112900526525

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

Well-below 2°C aligned

Please explain (including target coverage)

General Motors commits to reduce scope 3 GHG emissions from use of sold products of light duty vehicles 51% per vehicle kilometer by 2035 from a 2018 base year. The aggressive target was approved by SBTi organization in April 2021 and includes 100% of our light duty vehicles sold globally, including our JVs in China. The Well-below 2C aligned model is the most aggressive one available at this time for the Auto Transport OEM sector. The methods to meet this scope 3 target will be accomplished with our all EV future strategy with 30 new models by 2025, aspiration to be all EV by 2035, and increasing renewable energy generation supported by our RE-100, 4 pillar strategy, including supporting public policy for RE-100 globally. In 2020, we announced that we are working with EVgo to increase the number of DC fast chargers on EVgo's network, which is already the nation's largest public fastcharging network. The collaboration will add more than 2,700 new public fast chargers to the United States by the end of 2025. Fast charging stations will be located in highly visible areas like grocery stores, retail outlets and other high-traffic locations—and most will be able to charge at least four vehicles simultaneously at speeds of up to 350 kilowatts per hour. All chargers will be powered by 100% renewable energy.

C4.2

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

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

Other climate-related target(s)

C4.2a

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

Target reference number

Low 1

Year target was set

2017

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: energy carrier

Electricity

Target type: activity

Consumption

Target type: energy source

Renewable energy source(s) only

Metric (target numerator if reporting an intensity target)

Please select

Target denominator (intensity targets only)

<Not Applicable>

Base year

2016

Figure or percentage in base year

293458

Target year

2035

Figure or percentage in target year

6041604

Figure or percentage in reporting year

1398047

% of target achieved [auto-calculated]

19.2164395267622

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes, our RE-100 goal for renewable electricity by 2035, globally compliments our Scope 1&2 absolute emissions target of 71.4% GHG reduction by 2035 from a baseline of 2018.

Is this target part of an overarching initiative?

RE100

Please explain (including target coverage)

GM announced a renewable energy goal in September 2016 to use 100% renewable electricity by 2050 in our global facilities operations. Our four-tier approach includes - increasing energy efficiency in our operations, sourcing renewable electricity, addressing intermittent supply through storage, and influencing policy to drive scale. In early 2020, we pulled forward our 100 percent global renewable energy commitment to 2035 with interim goals of achieving 100 percent of U.S. sites by 2030. In the second quarter of 2020, we executed our largest solar project of 300 MW in Michigan through a green tariff agreement, making all GM sites in Southeast Michigan served by DTE on renewable power, including our global headquarters in Detroit and Global Technical Center in Warren Michigan. We are the 10th-largest off-taker of renewable energy in the world, and the second-largest off-taker in the manufacturing sector. In recognition of our efforts, GM received the 2020 Green Power Leadership Award in the Excellence in Green Power Use category from the U.S. Environmental Protection Agency. The awards recognize companies for their commitment and contribution to helping advance the development of the nation's voluntary green power market.

C4.2b

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

Target reference number

Oth 1

Year target was set

2011

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

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

Waste management	metric tons of waste generated
------------------	--------------------------------

Target denominator (intensity targets only)

vehicle produced

Base year

2010

Figure or percentage in base year

307

Target year

2020

Figure or percentage in target year

186

Figure or percentage in reporting year

211

% of target achieved [auto-calculated]

79.3388429752066

Target status in reporting year

Replaced

Is this target part of an emissions target?

Reducing waste in GM's operations provides an important part of our low-carbon transition plan. Using EPA WARM model, GM tracks progress of carbon reduction through waste reuse, recycle, and reduction of landfill materials. In 2019, GM avoided 6.0 Million metric tons of CO₂e emissions from Elimination, Reuse, Recycle activities which is more than our combined annual scope 1 and 2 emissions. Additionally, we have 85 landfill-free sites in 2020 that contributes to the waste reduction goal. GM is launching our new Zero Waste circular economy program. This will entail diverting 90% or more of our operational waste from landfills across targeted facilities by 2025. Importantly, waste must also be diverted from use in any type of incineration, making this goal more thorough than a landfill-free target.

Is this target part of an overarching initiative?

Other, please specify (Reducing waste in GM's operations provides an important part of our low-carbon transition plan.)

Please explain (including target coverage)

GM has made steady progress in reducing our operational waste intensity over the past decade. As we approach the terminal date of our current 2020 manufacturing goals, we are formulating a new goal to build further upon progress to date. Our aspiration is to become the first zero waste automotive company. As in the past, innovation and the adoption of new technologies will help us lead in this area. Our Bowling Green Assembly paint shop system, for example, is using limestone to capture overspray, a practice that eliminates more than 400 tons per year of paint sludge waste. Likewise, GM's design team donates scrap leather, vinyl and synthetic suede to the College for Creative Studies to be used by fashion students, and donates Corvette leather scraps to Pingree, a Detroit business that employs veterans with meaningful work. Pingree's team of makers hand craft this leather into custom Corvette-branded accessories. At our Global Design Center in Warren, Michigan, the extended design team collects and cleans clay that is left over from creating vehicle models, which help designers more clearly visualize and refine the look of a finished product. Using metal detecting wands, the team meticulously removes any metal pins and processes the material into a new mixture. In one hour, six team members can completely strip one midsize vehicle model of salvageable clay, preventing it from entering a landfill. Sending less waste to landfill also extends to our construction projects. GM's commitment to sustainability extends into global construction projects as well. In 2020, GM recycled over 140,000 tons of wood, metal, concrete and plastic produced in construction projects and found reuse initiatives for over 105,000 tons of concrete, soil, asphalt and other materials. Three key examples of GM's sustainability commitments applied in construction projects are found at GM's Factory ZERO, Spring Hill and Ultium Cells LLC. Our Zero waste aspirational plan will cover major operations globally.

Target reference number

Oth 2

Year target was set

2020

Target coverage

Business division

Target type: absolute or intensity

Absolute

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

Engagement with suppliers	Percentage of suppliers actively engaged on climate-related issues
---------------------------	--

Target denominator (intensity targets only)

<Not Applicable>

Base year

2020

Figure or percentage in base year

68

Target year

2022

Figure or percentage in target year

100

Figure or percentage in reporting year

96

% of target achieved [auto-calculated]

87.5

Target status in reporting year

Underway

Is this target part of an emissions target?

To help reduce our Scope 3, category 1 purchased goods and services GHG life cycle emissions, we need support from our supply chain. We set a goal for CDP Climate Change Supply Chain participation for 100% of our select suppliers to respond to CDP SC by 2022.

Is this target part of an overarching initiative?

Science Based Targets initiative

Please explain (including target coverage)

Although Scope 3, category 1 is not currently part of our SBT, it could be in the future as electrification of our fleet and increased use of renewable energy will make Scope 3 category 11 GHG emissions from vehicle emissions less impactful . Purchased goods and services GHG is our 2nd highest scope 3 emission and we need 100% of our strategic suppliers or about 300 to assist in decarbonization.

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	240	
To be implemented*	90	300000
Implementation commenced*	181	323057
Implemented*	181	159886
Not to be implemented	90	

C4.3b

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

Initiative category & Initiative type

Low-carbon energy generation	Wind
------------------------------	------

Estimated annual CO2e savings (metric tonnes CO2e)

4920

Scope(s)

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

0

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

0

Payback period

No payback

Estimated lifetime of the initiative

3-5 years

Comment

Our renewable electricity RE-100 commitment and implementation for our operations provides carbon reduction to help us meet our Science Based Target pathway. Although the majority is from Wind, we also have solar and biomass generation and PPAs. In 2020, the reduction was low due to less opportunity to procure renewable electricity, compared to 2019, as our electric use was reduced due to lower production volume.

Initiative category & Initiative type

Company policy or behavioral change	Resource efficiency
-------------------------------------	---------------------

Estimated annual CO2e savings (metric tonnes CO2e)

117660

Scope(s)

Scope 1
Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

7238000

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

7700

Payback period

<1 year

Estimated lifetime of the initiative

1-2 years

Comment

2020 provided a great opportunity to optimize our fixed energy in our operations with improved shutdown due to pandemic, consolidate operations, extend temperature and humidity ranges in our paint booths, and other energy conservation measures.

Initiative category & Initiative type

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

Estimated annual CO2e savings (metric tonnes CO2e)

17206

Scope(s)

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3081500

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

3444140

Payback period

1-3 years

Estimated lifetime of the initiative

6-10 years

Comment

Although many facilities were in lock down due to the pandemic, we were able to implement energy efficiency projects using Energy Performance Contracts and other methods with HVAC optimization, installing LED lights, improving building management systems, and other measures.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization
---	----------------------

Estimated annual CO2e savings (metric tonnes CO2e)

20100

Scope(s)

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

3437800

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

2200000

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

In 2020, GM implemented 94 energy improvements in our processes from new more efficient equipment, variable speed drives on motors, process controls, and other energy conservation measures.

C4.3c

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

Method	Comment
Dedicated budget for energy efficiency	GM uses a dedicated budget for energy efficiency projects in operations and Energy Performance Contracting (EPC) methods to supplement. In 2020, we continued to shift the majority of our spend from internal dedicated to external sources using EPC. The EPC method uses a shared savings approach that must include positive savings from day one.
Employee engagement	GM uses an energy management system (EMS) and performance contracts to achieve energy-reduction goals. The basis of the system originates from Energy Star model and is integrated into our plan, do, check, act business plan. In 2020, 25 GM U.S. manufacturing facilities, or more than 90 percent of our U.S. manufacturing footprint, implemented the U.S. Department of Energy's (DOE) 50001 Ready program. This program is an application tool through which 25 tasks are measured to demonstrate an effective EMS. Upon completion, facilities can self-attest to the structure of ISO 5001, a voluntary global standard. GM engaged with DOE to train the GM Energy team, along with suppliers and other companies on the 50001 Ready process. GM has recognized by DOE in US for "50001 Ready" for 25 facilities. We plan to expand this program to all manufacturing facilities globally in order to continuously monitor and improve our EMS. The process is key to making behavioral changes and engaging with employees.
Internal price on carbon	GM has operations in countries with carbon trading schemes, e.g. South Korea, where we have realized real savings from energy efficiency with sales of credits into the market to fund energy efficiency projects. Our internal price is set at \$25 per ton. We incorporate this into our energy project tracking system to include the GHG savings based on an internal price on carbon in our payback calculation. This helps prioritize projects that save greater amounts of GHG.

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

Our 2020 EV portfolio includes electric vehicles—such as our Chevy Bolt and our Baojun E100, E200, and E300, sold in China. These vehicles have zero tailpipe emissions and lower overall emissions compared to internal combustion engine (ICE) vehicles. The Bolt offers an EPA estimated range of 238 miles on a full charge and 60 kWh battery capacity. The E100, E200, and E300 offer an estimated range of 100, 200, 300 km on a full charge, respectively. Electric vehicles sold globally with lower emissions than comparable ICE vehicles available for sale provide our customers GHG reduction opportunities.

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

Low-carbon product and avoided emissions

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

Other, please specify ((Fuelconomy.gov provides a method to calculate the emissions of low-carbon products as well as the equivalent emissions of a conventional vehicle for GHG comparison.) GM used the calculator to compare similar vehicle models of EV vs. ICE models.)

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

0

% of total portfolio value

<Not Applicable>

Asset classes/ product types

<Not Applicable>

Comment

Reductions in energy consumption and GHG emissions for our products can be contributed to the increase in production and sales of electric vehicles in US, China and globally. To evaluate the impact, we used EPA and DOE website "fuelconomy.gov". Rationale for this calculation includes side by side comparison of Chevrolet Bolt EV vehicles to Chevrolet Trax (ICE) with extrapolation for Baojun E100, E200, and E300. Standards, methodologies, assumptions and calculation tools used can be found at <https://www.fueleconomy.gov>. Total estimated GHG emissions avoided based on these calculations is 148,698 metric tons and 1.5 Million tons over a 10 year lifetime. GM produces Electric vehicles (EV) sold globally (e.g. Baojun E100, E200, E300, and Chevrolet Bolt EV) with lower emissions than comparable internal combustion vehicles sold.

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 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

1763555

Comment

GM's baseline of 2018 for our Science Based Target for scope 1 was chosen due to production anomalies in 2019 due to work stoppage and 2020 pandemic production stoppages globally. The scope 1 baseline was verified by an independent third party.

Scope 2 (location-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

4322761

Comment

GM used Scope 2 Market-based baseline for our Science Based Targets.

Scope 2 (market-based)

Base year start

January 1 2018

Base year end

December 31 2018

Base year emissions (metric tons CO2e)

3924338

Comment

GM's baseline of 2018 for our Science Based Target for scope 2 was chosen due to production anomalies in 2019 due to work stoppage and 2020 pandemic production stoppages globally. The scope 2 baseline was verified by an independent third party.

C5.2

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

Korea GHG and Energy Target Management System Operating Guidelines

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

US EPA Mandatory Greenhouse Gas Reporting Rule

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)

1214124

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

GM's scope 1 emissions are generated from use of fossil fuels, mostly natural gas for process and building heat and were verified by an independent third party.

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

Based on GM's RE-100 commitment, we chose to use market based GHG emissions for our Science based target reduction goal.

C6.3

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

Reporting year

Scope 2, location-based

3087816

Scope 2, market-based (if applicable)

2599822

Start date

<Not Applicable>

End date

<Not Applicable>

Comment

GM's scope 2 emissions are mostly from electricity used in our operations for process and building with some purchased steam and delivered heat by third parties. We had an independent third party verify location and market based scope 2 GHG emissions.

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

Small office type buildings where tracking energy use is difficult due to energy inclusion in building leases or other factors and are insignificant to our GHG disclosure.

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

The estimated GHG emissions from these small operations are estimated at 0.04% and are insignificant to our GHG disclosure and would require more resources than the value provided and are excluded from our disclosure.

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

50848346

Emissions calculation methodology

Following the GHG Protocol, this Supply Chain analysis is "cradle-to-gate" for emissions associated with the value chain from material extraction through manufacturing. The use and disposal phases of the product are omitted in this case. Using annual spend provided by General Motors as the Company's activity data combined with emissions factors from the Climate Earth's Environmental Database, the core of which is the USEPA Environmental Extended Input Output database (USEEIO v1.1) which provides industry average cradle-to-gate emissions factors for economic sectors. Due to the complexities of large supply chains, the WRI Corporate Value Chain Accounting and Reporting Standard (WRI Scope 3 Standard) specifically permits the use of industry average emissions factors combined with direct company activity data. General Motors has provided complete direct spend activity data for the Company for the 2019 reporting year. 2019 was selected due to lack of available data for all scope 3 calculations for 2020 at the time of submission. The methodology employed for these calculations conforms to the WRI Corporate Value Chain (Scope 3) Accounting and Reporting Standard. The model provides tier analysis and industry analysis for strategic planning to reduce life cycle GHG emissions for auto parts. The majority of GHG is in tiers 2-6 and in electric and steel industries. The GHG emissions were verified by an independent 3rd party.

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

50

Please explain

Spend data is a key component of the economic input output analysis and is derived from supplier spend at a part number and manufacturing country level for increased granularity. This is extremely important for water life cycle analysis since location is important for water security. As a calibration method, CDP Supply Chain tier 1 data is compared to improve accuracy. This data was verified by a 3rd party in 2021 using 2019 LCA data. As the GHG is over 9 times our Scope 1 & 2 emissions, it is relevant.

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3167447

Emissions calculation methodology

Following the GHG Protocol, this Supply Chain analysis is "cradle-to-gate" for emissions associated with the value chain from material extraction through manufacturing. The use and disposal phases of the product are omitted in this case. Using annual spend provided by General Motors as the Company's activity data combined with emissions factors from the Climate Earth's Environmental Database, the core of which is the USEPA Environmental Extended Input Output database (USEEIO v1.1) which provides industry average cradle-to-gate emissions factors for economic sectors. Due to the complexities of large supply chains, the WRI Corporate Value Chain Accounting and Reporting Standard (WRI Scope 3 Standard) specifically permits the use of industry average emissions factors combined with direct company activity data. General Motors has provided complete direct spend activity data for the Company for the 2019 reporting year. 2019 was selected due to lack of available data for all scope 3 calculations for 2020 at the time of submission. . The methodology employed for these calculations conforms to the WRI Corporate Value Chain (Scope 3) Accounting and Reporting Standard. The model provides tier analysis and industry analysis for strategic planning to reduce life cycle GHG emissions for Capital Goods. The GHG emissions were verified by an independent 3rd party.

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

50

Please explain

Spend data is a key component of the economic input output analysis and is derived from supplier spend at a manufacturing country level for increased granularity. This is extremely important for water life cycle analysis since location is important for water security. As the GHG from Capital Goods is 60% of our Scope 1 & 2 emissions, it is relevant.

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

Evaluation status

Relevant, calculated

Metric tonnes CO2e

322403

Emissions calculation methodology

Using Australia's National Greenhouse Accounts (NGERS) factors 2019, natural gas fugitive emissions of GHG not included in Scope 1 were estimated globally based on scope 1 use. US EIA estimates electric losses and the factor was applied globally using scope 2 emissions to estimate fugitive electric GHG not accounted for in scope 2 calculations.

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

50

Please explain

NGERS and USEIA factors account for half of the calculation, whereas, actual data from scope 1 and 2 comprise the remaining portion of data. This data was verified by a 3rd party in 2021 using 2019 data. Based on the methodology used, the value is 6% and exceeds the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be relevant. Reduction of Scope 1 and 2 reduces this scope 3 emission.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

4965042

Emissions calculation methodology

GM is a member of US EPA SmartWay and used their methodology to obtain GHG emissions, based on truck and rail distances and fuel efficiency according to GHG Protocol for GM's North America parts delivery from third party carriers and logistics providers in US and Canada. Ocean emissions intensity was evaluated using a major supplier's carbon accounting and extrapolating using revenue intensity. Truck and Rail transport GHG emissions were extrapolated for other countries using SmartWay GHG emission factors normalized by vehicle production. Ocean and Air transport emissions for all global upstream transportation GHG were estimated using CDP Analytics for similar companies multiplied by revenue spend. As SmartWay data is one year in arrears, the basis for the data is 2019 and was verified by an independent 3rd party in 2021.

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

50

Please explain

SmartWay provides data from carriers using fuel use and from GM for distances travelled and load weights. Revenue spend is from suppliers and CDP analytics provides companies revenue intensities as secondary data. The quantity is about the same as our scope 1 and 2 GHG emissions it is relevant to our carbon footprint.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

954

Emissions calculation methodology

USEPA WasteWise model applied with GM Global waste data. GM avoided 6 Million metric tons by reusing, recycling, and composting significant quantities of materials. In 2019 we had 94 land-fill free sites globally that provides more than a total offset from waste reuse and recycle activities to our Scope 1 & 2 GHG emissions. Although the GHG is small compared to our total carbon footprint (0.02%), waste reduction and a circular economy is strategic to our business and included as relevant. We used 2019 data as all of scope 3 data was not available for 2020 at the time of submission.

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

50

Please explain

Reuse, recycling, incineration, and landfill activities are inputs to USEPA WARM model from actual data and the remaining calculation from WARM uses secondary data factors. As GM increases its waste reuse and recycling, our GHG from waste to landfill is reduced accordingly. In 2019, GM avoided 6 Million tons of GHG through reduction, reuse, recycle, and composting materials and had 94 Landfill-free sites. Although CO₂e reductions have reduced it to below relevant levels, we continue to treat it as relevant due to the huge GHG avoidance opportunity as reuse and recycling avoids more than our scope 1 & 2 emissions combined and waste reduction is strategic to our business.

Business travel

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

40051

Emissions calculation methodology

GHG Protocol method was used by our 3rd party travel agent to calculate Air Business travel GHG emissions for our global operations from 2019 data. The GHG emissions were verified by a 3rd party in 2021.

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

50

Please explain

Distances travelled is primary data and emission factors is secondary. Based on the methodology used, the value is 1% or much less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

Employee commuting

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

123000

Emissions calculation methodology

Using CDP Analytics, an average of employee commuting intensity per employee was calculated and applied to GM's total employee number to estimate our GHG associated with employee commuting in 2019.

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

50

Please explain

Based on the methodology used, the value is 2% or much less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

Upstream leased assets

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

10077

Emissions calculation methodology

GM's leased asset facility area was used along with the GHG intensity of similar facilities to estimate the GHG from GM's global upstream leased assets. GHG from some of our large leased assets where GM pays the energy bills are included in Scope 1 and 2 data.

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

50

Please explain

Based on the methodology used, the value is 0.2% or much less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant. Area of leased space is primary data and intensity factors is secondary.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

1532188

Emissions calculation methodology

GM is a member of US EPA SmartWay and used their methodology to obtain GHG emissions, based on truck and rail distances and fuel efficiency according to GHG Protocol for GM's North America parts delivery from third party carriers and logistics providers in US and Canada. Ocean emissions intensity was evaluated using a major supplier's carbon accounting and extrapolating using revenue intensity. Truck and Rail transport GHG emissions were extrapolated for other countries using SmartWay GHG emission factors normalized by vehicle production. Ocean and Air transport emissions for all global upstream transportation GHG were estimated using CDP Analytics for similar companies multiplied by revenue spend. As SmartWay data is one year in arrears, the basis for the data is 2019 and was verified by an independent 3rd party in 2021. As this is 29% of Scope 1 & 2, the emissions are relevant.

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

50

Please explain

SmartWay provides data from carriers using fuel use and from GM for distances travelled and load weights. Revenue spend is from suppliers and CDP analytics provides companies revenue intensities as secondary data. The quantity is about half of scope 1 and 2 and is relevant to our carbon footprint.

Processing of sold products

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

120731

Emissions calculation methodology

GM sells boat engines as an intermediate product to boat manufacturers and customers for recreational use. Based on estimates from boatcarbonfootprint.com, including average hours of operation and fuel efficiency for gasoline engines and USEPA emission factors, a total GHG amount for the use of sold products was calculated and extrapolated for total carbon footprint.

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

50

Please explain

Based on the methodology used, the value is 2% or less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

190120729

Emissions calculation methodology

GHG from the Use of Sold products or vehicles is calculated using the average regional CO2e tailpipe emissions per vehicle multiplied by life cycle distance driven by customers of 150,000 km over 10 years and multiplied by 2019 sales volumes, which is our highest GHG emissions category and is relevant. Regional emission factors are calculated using governmental methods in countries such as, USA, Brazil, and China. Additionally, fugitive emissions of Mobile air conditioning units are calculated using WRI method 3 and added for total estimated GHG emissions. The regions utilized for emission factors are USA, Brazil, and China based on the most fully developed regulatory monitoring and measurement systems. Vehicle emissions were verified by a third party, including mobile air conditioning, which accounts for less than 1% and getting less as GHG friendly refrigerants like HF1234yf are being used.

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

50

Please explain

2019 calculation of life cycle GHG from vehicles sold is done using regional vehicle tailpipe emissions rates for increased granularity. Vehicle emissions were verified by a third party, including mobile air conditioning fugitive emissions of GHG, which accounts for less than 1% and getting less as more Climate Change friendly refrigerants like HF1234yf are being used in-lieu of R134a.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2958656

Emissions calculation methodology

The total emissions are based on the "end of life" CO2e results of product life cycle analysis calculations performed at General Motors for specific automobiles and their material compositions and is multiplied by the total amount of vehicles that GM sold globally in 2019.

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

50

Please explain

Product life cycle analysis provides a basis for GHG emissions from end of life of an automobile. Design for the Environment activities provide a method for continuous improvement in End of Life GHG. As the GHG is 55% of scope 1 and 2, it is relevant. Primary data is vehicle volume and secondary is Product LCA.

Downstream leased assets

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

20459

Emissions calculation methodology

A portion of GM's global headquarters facility is leased to other tenants as well some vehicle haul-away sites. The GHG represents the estimated use from leased spaces based on energy invoice data and meter allocations. GHG emissions are calculated using GHG Protocol with E-Grid and fuel emission factors from USEPA.

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

50

Please explain

The GHG represents the estimated use from leased spaces based on energy invoice data and meter allocations. GHG emissions are calculated using GHG Protocol with E-Grid and fuel emission factors from USEPA. Based on the methodology used, the value is 0.4% or much less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

Franchises

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

138641

Emissions calculation methodology

Using CDP Analytics, a representative GHG intensity per area (ft²) was used along with the number of GM's independent dealers (franchises) to estimate our GHG from franchise activities. (GHG/SF x Number of dealers x average area of dealerships) = GHG from GM franchises.

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

50

Please explain

Based on the methodology used, the value is 3% or less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

Investments

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

71424

Emissions calculation methodology

We have equity ownership stakes in entities that meet the demands of customers in other countries, primarily in China, with vehicles developed, manufactured, and/or marketed under the Baojun, Buick, Cadillac, Chevrolet, Jiefang, and Wuling brands. The emissions from these investments are included in our Scopes 1,2, and 3. Emissions from other investments, e.g. GM Financial and Cruise, are insignificant and related to small leased offices in 2020. Investment GHG is estimated based on CDP Analytics average GHG revenue intensity multiplied by Revenue or sales from GM Financial and Cruise.

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

50

Please explain

Based on the methodology used, the value is 1% or much less than the 5% threshold of relevancy established compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.

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>

Please explain

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>

Please explain

C6.7

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

No

C6.10

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

Intensity figure

0.000035

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

3813946

Metric denominator

unit total revenue

Metric denominator: Unit total

108669000000

Scope 2 figure used

Market-based

% change from previous year

10

Direction of change

Decreased

Reason for change

We saw a reduction in both revenue and vehicle GHG intensities in 2020 compared to 2019, primarily due to the plant shutdown measures we took in response to the COVID-19 pandemic. While we saw a 16% decrease in production and an 11% decrease in revenues in 2020 compared to 2019, we would expect an increase in revenue intensity as fixed energy usually drives both revenue and vehicle intensities higher.

Intensity figure

0.62

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

3813946

Metric denominator

vehicle produced

Metric denominator: Unit total

6130748

Scope 2 figure used

Market-based

% change from previous year

14

Direction of change

Decreased

Reason for change

We saw a reduction in both revenue and vehicle GHG intensities in 2020 compared to 2019, primarily due to the plant shutdown measures we took in response to the COVID-19 pandemic. While we saw a 16% decrease in production and an 11% decrease in revenues in 2020 compared to 2019, we would expect an increase in revenue intensity as fixed energy usually drives both revenue and vehicle intensities higher.

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	1054922	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	159202	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	982660
South America	46141
Other, please specify (Rest of World or GMIO)	185323

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
GM North America	982660
GM South America	46141
GM International Operations	185323

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 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 (midstream)	<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	35464	<Not Applicable>	Fuel use in company vehicles used with WRI model for GHG transport.
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 for in Scope 2 market-based approach (MWh)
North America	2288231	1779578	3542602	3542602
South America	77721	77721	369285	369285
Other, please specify (Rest of World - GM International Operations)	721864	742622	1044183	1044183

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
GM North America	2288231	1779578
GM South America	77721	77622
GM International Operations - includes GM total minus Americas	721864	742622

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 (midstream)	<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	3087816	2599822	We are reporting 100% of our scope 2 emissions as resulting from Transport OEM activities.
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

242

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

358725022

Metric denominator

p.km

Metric denominator: Unit total

1485090000000

% change from previous year

-4

Vehicle unit sales in reporting year

6828000

Vehicle lifetime in years

10

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

15000

Load factor

GM does not track passengers per vehicle and used 1.45 as the average of EEA, "Occupancy Rates of Passenger Vehicles" (European Environment Agency, 2015), or range of 1.2 and 1.7

Please explain the changes, and relevant standards/methodologies used

The well to wheel GHG emissions intensity figure of 350 grams/passenger kilometer was derived using GHG Protocol method with the following data assumptions: Regulatory tank to well tailpipe emissions per vehicle from US, China, and Brazil, extrapolated for upstream emissions for fuel for ICE vehicles and e-Grid electric emission factors for EV charging. The load factor of passengers is the average from EEA, and we assumed 15,000 km driven and 10 year lifetime as used by most other OEMs and was used for consistency. The reduction in grams per passenger km of 4% is resultant from a combination of model mix variation, electricity grid improvement, and improvement in fuel efficiency from ICE with start-stop technology, downsized engines with Turbo, and advanced transmissions as well as increased EV sales.

C7.9

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

Decreased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	4920	Decreased	0.1	The pandemic conditions of 2020 resulted in reduced operations and less opportunity to generate and procure renewable electricity (MWh) compared to 2019. Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 4,920/5,311,575x100 = -0.1%
Other emissions reduction activities	154966	Decreased	3	GM implemented about 140 energy conservation initiatives in 2020 including behavioral changes, HVAC improvements, Building Management Systems, LED lights, and paint process improvements (Variable Speed Drives on motors and process controls). Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 154,966/5,311,575x100 = -3%
Divestment	652985	Decreased	12.3	GM divested of operations in US, Thailand, India, Australia, Russia, and Uzbekistan resulting in reduced emissions compared to 2019. Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 652,985/5,311,575x100 = -12.3%
Acquisitions	0	No change	0	GM had minimal acquisitions that affect GHG emissions.
Mergers	0	No change	0	GM had minimal mergers that affect GHG emissions.
Change in output	745008	Decreased	14	GM's vehicle production reduced by 16% in 2020 vs. 2019 and with 0.62 tons per vehicle, we estimated the change in GHG due to volume reductions. Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 745,008/5,311,575x100 = -14%
Change in methodology	181930	Decreased	3.4	Based on US e-grid changes in 2020 vs. 2019 for states where GM has major production shows 7% greening of the grid. Calculation: Change in emissions in column 2) / Previous year emissions * 100%: -181,930,920/5,311,575x100 = -3.4%
Change in boundary	0	No change	0	
Change in physical operating conditions	4493	Increased	0.1	Cooling degree and Heating degree days increased by 0.3% at the locations of GM's major manufacturing sites and we estimated this as effecting GHG by 50% proportionally. Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 4,493/5,311,575x100 = -0.1%
Unidentified	237687	Increased	4.5	Due to the global pandemic and numerous site closures, we estimate the uncertainty of change at 4.5%. When facilities are idled for long periods of time our normal regression methods for forecasts are not as accurate as during continuous production. Calculation: Change in emissions in column 2) / Previous year emissions * 100% - 237,687/5,311,575x100 = -4.5%
Other	0	No change	0	

C7.9b

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

Market-based

C8. Energy

C8.1

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

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

C8.2

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	238938	5687326	5926264
Consumption of purchased or acquired electricity	<Not Applicable>	1398047	4643557	6041604
Consumption of purchased or acquired heat	<Not Applicable>	0	12619	12619
Consumption of purchased or acquired steam	<Not Applicable>	0	309384	309384
Consumption of purchased or acquired cooling	<Not Applicable>	0	357	357
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	1636985	10653243	12290228

C8.2b

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

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

C8.2c

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

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

5685326

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

2427450

MWh fuel consumed for self-generation of steam

2700000

MWh fuel consumed for self-generation of cooling

80000

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

0.18

Unit

metric tons CO2 per MWh

Emissions factor source

Intergovernmental Panel on Climate Change (IPCC) AR 5 for natural gas is used globally with emission factor 0.18 tons per MWh.

Comment

Natural Gas is used for ovens to cure paint, building heating, and generation of hot water and steam in boilers.

Fuels (excluding feedstocks)

Landfill Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

238938

MWh fuel consumed for self-generation of electricity

210000

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

28938

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Emission factor

0.00112

Unit

metric tons CO2 per MWh

Emissions factor source

IPCC AR4 emission factor is used from IEA report.

Comment

US EPA.gov reports "CO2 emissions from MSW landfills are not considered to contribute to global climate change because the carbon was contained in recently living biomass. The same CO2 would be emitted as a result of the natural decomposition of the organic waste materials outside the landfill environment."

C8.2d

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	65641	65641	65641	65641
Heat	2427450	2427450	0	0
Steam	2700000	2700000	0	0
Cooling	80000	80000	0	0

C8.2e

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

Sourcing method

Standard product offering by an energy supplier supported by energy attribute certificates

Low-carbon technology type

Wind

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

United States of America

MWh consumed accounted for at a zero emission factor

1398047

Comment

The majority of our renewable electricity is from Wind PPA, but also we have solar, biogas, and other various RE sources to comprise the total MWh listed here and was verified by an independent 3rd party.

C-TO8.5

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

Activity

Light Duty Vehicles (LDV)

Metric figure

190123729

Metric numerator

tCO₂e

Metric denominator

Production: Vehicle

Metric numerator: Unit total

190123729

Metric denominator: Unit total

7332373

% change from previous year

-1

Please explain

Total use of sold product is calculated annually for 2019. The method is consistent with Regulatory reporting of tailpipe emissions, using country vehicle emission methods for US, China, and Brazil. The GHG emission intensities are applied to every country with sales using emission factors that match the models typically sold in that country, e.g. US factors used in Canada, Brazil factors used in South America, and China used in Asia, Africa, and Middle East. Emission intensities (Grams/km) are multiplied by 15,000 km/year driven per vehicle and number of vehicles sold by country. Metric tons are normalized by sold vehicles in 2019 for metric figure reported. The numerator is annual CO₂e emissions from 100% of vehicles and metric is normalized by vehicle sales. There is a 1% decrease due to ICE efficiencies of Start-stop, advanced transmissions, and electrification as well as product mix of sales in 2019 vs. 2018.

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

211

Metric numerator

Total waste from GM operations in Kilograms

Metric denominator (intensity metric only)

6.130748 Million Vehicles produced

% change from previous year

5

Direction of change

Decreased

Please explain

GM has made steady progress in reducing our operational waste intensity over the past decade. In 2020, we completed the last year of progress toward our goal to reduce waste intensity by 40% with a 31% reduction in 2020 compared to 2010. Production reduction in 2020 resulted in a challenge to meet the goal, but we had a 5% reduction compared to 2019, showing continuous improvement.

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

Battery electric vehicle (BEV)

Metric figure

3

Metric unit

% of total sales

Explanation

Our global commitment to realize an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025. By mid-decade, our intent is to sell a million EVs per year globally, including in our two largest markets: North America and China, where we are working with our joint venture partners. GM's flexibility and engineering focus will drive the scale required to accelerate our path to zero emissions in a profitable and efficient way. In addition, we are leveraging existing assets, such as production tools and body and paint shops, so that economies of scale can be realized with less capital and further position the next generation of these products for profitability. Our global sales of electric vehicles in 2020 was 200,268 vehicles and the metric reported is based on sales volumes in 2020 of 6.8 M vehicles.

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

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

	Investment in low-carbon R&D	Comment
Row 1	Yes	Lightweight materials and other innovations further our EV development work—up to 80% of ICE ("Internal Combustion Engine") vehicle development costs that don't involve propulsion are also shared by EVs. GM's total spend on R&D in 2020 was \$6.2B USD.

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

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

Activity

Light Duty Vehicles (LDV)

Technology area

Electrification

Stage of development in the reporting year

Full/commercial-scale demonstration

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

≤20%

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

6200000000

Comment

Though many of the details about our electric future were revealed during EV Week in the first quarter of 2020, we've been preparing for this future for years. We have two decades of electrification knowledge and experience and have invested billions in research and development. This includes a \$1.5 billion investment at our Technical Center, where we have expanded and enhanced our state-of-the-art battery testing lab, as well as other R&D facilities. The battery lab has been the largest and most advanced test lab in America for over a decade. The latest expansion brings the facility to more than 100,000 square feet and includes heavy and mild battery abuse test areas and new test chambers. Today, more than 50 percent of the work at our Technical Center is focused on EV development compared with about 20 percent three years ago. Starting in 2021, more than half of GM's capital spending and product development team will be devoted to electric and electric-autonomous vehicle programs. These types of R&D investment are one reason that GM has more than 3,000 global patents related to electrification on file today.

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

ver_stmt_2020_GM_Global_20210423.pdf

Page/ section reference

Page 2, table 1.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

ver_stmt_2020_GM_Global_20210423.pdf

Page/ section reference

Page 2, table 1.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Use of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

ver_stmt_2019_Scope_3_GM_Global_20210423.pdf

Page/section reference

Page 2, table 1.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

99

C10.2

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

Yes

C10.2a

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

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	ISO-14064-3	Our independent third party verified that GM reduced absolute Scope 1 & 2 emissions by 29.6% in 2020 compared to 2019. We also verify production, renewable electricity, waste, water, and energy use.

ver_stmt_2020_GM_Global_20210423.pdf

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

Canada federal Output Based Pricing System (OBPS) - ETS
China national ETS
Korea ETS

C11.1b

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

Canada federal OBPS - ETS

% of Scope 1 emissions covered by the ETS

99

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1 2019

Period end date

December 31 2019

Allowances allocated

57775

Allowances purchased

7490

Verified Scope 1 emissions in metric tons CO₂e

65929

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

GM's primary focus for global ETS is energy efficiency to minimize allocations purchased and maximize carbon credits for sale. 2020 data not available yet

China national ETS

% of Scope 1 emissions covered by the ETS

16

% of Scope 2 emissions covered by the ETS

84

Period start date

January 1 2020

Period end date

December 31 2020

Allowances allocated

480896

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

71256

Verified Scope 2 emissions in metric tons CO₂e

410458

Details of ownership

Facilities we own but do not operate

Comment

(As our China and US Joint Venture ownerships include a managing director from GM for operations, we include active JV's in our carbon reporting and jointly share best practices.)

Korea ETS

% of Scope 1 emissions covered by the ETS

34.2

% of Scope 2 emissions covered by the ETS

65.8

Period start date

January 1 2020

Period end date

December 31 2020

Allowances allocated

264459

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

78000

Verified Scope 2 emissions in metric tons CO2e

150046

Details of ownership

Facilities we own and operate

Comment

Current balance is +116,776 CO2eq tons. (2020 savings 36,413 tons, carry over from 2019 : 80,363 tons) GM will sell 71,200 CO2eq tons by July 30, 2021 and carry over 45,576 tons to 2021.

C11.1d

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

GM's 2035 energy reduction goals of 35% from a baseline of 2010, coupled with our Science-based targets for operations of 72% reduction in absolute GHG from 2018 to 2035 require continuous improvement in energy efficiency. To meet these targets, GM needs to implement energy efficiency projects as part of our business plan. Our strategy for participating in regulated emissions trading schemes in Korea and China is to continue implementing energy efficiency projects and initiatives to reduce GHG and provide value from the sale of carbon credits in the marketplace to provide additional funding for continuous improvement. An example of why this is important to us is in from our plants in Korea that we gained \$1.1 M from the sale of carbon credits, reduced structural cost, and gained energy and carbon absolute reduction that will help us meet our goals.

Implementing energy efficiency in GM operations in Korea and China is an ongoing process as it is integrated into our business plans and includes Energy treasure hunts, energy teams and project and initiative implementation. In 2020 our 3 GM Korea plants implemented these projects for a total of close to 11,000 tons reduction in GHG and OPEX savings of \$2.5M USD with these projects - LED lights replaced less energy efficient ones, control steam pressure based on outside temperature, replacement of Regenerative Thermal Oxidizer with a more efficient one, coupled with a VOC concentrator. These initiatives represent an opportunity for us to meet our goals, reduce our operations costs, and to sell carbon credits into the Korean Carbon Emission Trading Scheme. In 2020, GM Korea continued to make efficiency improvements and sold 40,500 CO2eq tons at \$1.1M USD in 2020 or 27 USD/ton

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

Transport

Project identification

One of GM's fleet customers was interested in offsetting a part of their scope 3 vehicle emissions from GM vehicle use for the short term in 2020. GM procured 15,500 tons of verified carbon credits from Intermodal transportation. The 15,500 tons were retired in the name of the customer in 2020 as part of an incentive program. The GHG CleanProjects® Registry provides a portal to report and showcase your project's greenhouse gas (GHG) emission reductions or removals. It offers a web-based public location that is accessible world-wide. The GHG CleanProjects® Registry's focused mandate relates to the listing and delisting of greenhouse gas projects and resulting verified emission reductions and removals. Through its serialization engine, the GHG CleanProjects® Registry's tags each tonne of verified emission reductions/removal with a unique serial number. Information displayed in the GHG CleanProjects® Registry may be useful for corporate risk management, voluntary initiatives, GHG markets and regulatory reporting/compliance

Verified to which standard

Other, please specify (CSA verified Greenhouse Gas Emission reductions. These VERRS are retired on the GHG Clean Projects Registry.)

Number of credits (metric tonnes CO2e)

15500

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

15500

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

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

GHG Scope

Scope 1
Scope 2

Application

GM's Energy efficiency projects usually provide a return on investment of 2-3 years. Adding the value of carbon credits to the savings provides for quicker payback and allows additional projects to be implemented within the targeted return. An example of this was in our facilities in South Korea where energy project business cases included carbon credits to enhance the returns. In reality, GM Korea was able to sell XX CO2eq tons at \$X M USD into the market at a price of \$XX/ton, yielding \$X M USD. An example of prioritization is for two energy saving LED projects with similar paybacks, one in US and one in Canada, would be prioritized by added benefit of more CO2e savings in US due to higher emission factors. Additionally, we modified our energy savings project tracking application to include a price on carbon in our energy efficiency and carbon reduction project prioritization process. This provides a method for reducing carbon as a top priority for implementing projects.

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

25

Variance of price(s) used

We have not used an estimated variance in price on carbon yet, as real market data is easiest for GM management to utilize as it is indicative of current market conditions. We are expanding this to other regions and have started using a shadow price to prioritize energy and carbon efficiency projects in North America.

Type of internal carbon price

Shadow price

Impact & implication

Using a price on carbon provides a number of advantages including greater awareness of the value of carbon reduction, prioritization of projects that favors carbon reduction, and an increase in project spend available in regions where cap and trade is in effect as experienced in our facility in Korea where we sold credits to the market. GM modified our Energy Savings project tracking system (ETQ) in Reliance software to include in the savings based on our internal price on carbon to increase the return on investment for projects that have a more favorable carbon reduction. As an example, an LED retrofit project in USA with the same cost and savings would have a quicker payback than a similar project in Canada, where the carbon emission factor for electric is lower than in US.

C12. Engagement

C12.1

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

Yes, our suppliers
Yes, our customers

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)

82

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

23

Rationale for the coverage of your engagement

General Motors' sustainability strategy is synonymous with its business strategy. Our vision for personal mobility is a world with zero crashes, zero emissions and zero congestion. By delivering safer, simpler and sustainable transportation solutions for our customers, we'll realize that vision. In the process, our goal is for GM to become the most valued automotive company. In order to build the most valuable automotive company, we must recognize that our impacts go beyond the walls of GM to include our entire value chain, of which customers and suppliers make up a significant part. The importance of strong supply chain management and relationships is further underscored as new issues arise due to business expansion and increased participation in more advanced technologies, such as electric and autonomous vehicles. In 2020, we started the Supplier Sustainability Sub-Council consisting of about 10 suppliers leading different areas like logistics, services and parts manufacture. The focus of the council is to develop the best method for sharing ideas on reducing energy, emissions and water throughout GM's entire supply chain. We seek to partner with suppliers who share our purpose and values. We expect our employees who work with suppliers to hold them accountable to the same environmental principles and ethical standards to which we hold our own employees and operations—so we all win with integrity. Engagement with suppliers to reduce GHG in auto parts life-cycle is an enormous task that requires prioritization. We use life cycle analysis (LCA) of GHG for each supplier to determine the impact on our Scope 3 emissions and include the top emitters that are mostly in the top spend group also in our engagement with CDP Supply Chain. GM participates with CDP Supply Chain in both Climate Change and Water and we asked over 300 suppliers, comprised of the majority of spend at 82% and large GHG emitters groups, to engage in 2020. We use CDP Supply Chain GHG data to calibrate our LCA emissions for auto parts and to engage with them on collaboration to reduce the effects of Climate Change.

Impact of engagement, including measures of success

The number of suppliers responding to CDP Climate Change increased from 68% in 2019 to 96% in 2020 with the assistance of CDP Supply Chain and the establishment of a goal to have 100% by 2022. Measuring our supply chain's disclosure and performance related to Climate Change shows decrease in the important areas of disclosure, governance, and emissions reporting, Suppliers engaging with their suppliers, also decreased in number of Suppliers reporting a target by 4%, and but increased in renewable energy consumption by 7%. The decrease in the aforementioned areas is expected as we increased our response rate to 96% that includes many new CDP Supply Chain responders that are just starting on their sustainability journey. It is encouraging to see our suppliers engaged in Science based targets with 8 having an approved one or anticipating an SBTi within the next two years. A total of 6 have Renewable energy to RE-100 goals, similar to GM. We have engaged with one supplier on reducing the impact on forests with the development of an airless tire. GM suppliers reported reduction of 23 million tons of GHG with energy efficiency and conservation efforts that amounted to \$1B USD in savings. GM measures success in supply chain engagement on Climate Change by measuring response rate and year over year continuous improvement (CI), here are the important results for 2020 vs. 2019: - Suppliers reporting to CDP based on GM request increased from 68% to 96% with support from GM's global purchasing and supply chain team. Suppliers reporting targets in high GHG intensity (Power Generation and Fossil Fuels reached 100% with overall 67% having some form of targets. GM's expectation for CI is based on four levels, 0) Compliance - CDP participation, 1) Commitment - targets, 2) Growth - aggressive targets, and 3) Leadership - SBTi, RE-100, Zero Waste, LCA... with various important aspects of supply chain engagement in Climate Change included for each of the 4 levels.

Comment

C12.1b

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

Type of engagement

Collaboration & innovation

Details of engagement

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

7

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

7

Portfolio coverage (total or outstanding)

<Not Applicable>

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

GM is committed to a world with Zero emissions and is selling battery electric vehicles (BEV) that emit lower carbon emissions than internal combustion engines. GM had sales of over 200,000 electrified vehicles in 2020, including 117,599 Hong Guang Mini EV in China, demonstrating that a growing number of our customers support a lower carbon economy. The scope of engagement is to sell electric vehicles and support the development of EV infrastructure to increase EV sales. GM's collaboration effort toward an all-electric future is demonstrated by our proposed National Zero Emission Vehicle (NZEV) program. Under the plan we have submitted, manufacturers would need to meet steadily increasing targets for electrifying a portion of their light-duty vehicle fleets. The program could put more than 7 million long-range EVs on the road while reducing CO2 emissions by 375 million tons over current levels between 2021 and 2030. A 10% market penetration for GM would mean targeting 7% of our customers for EV sales in the near future. We aim to earn customers for life, which ensures the long-term sustainability of our business in a competitive and changing marketplace. GM's engagement with customers includes: i.) Participating in customer satisfaction surveys to understand what vehicle attributes customers value; ii.) Partnering to expand EV charging infrastructure by providing customers with easy access to charging stations; and iii.) Educating customers on the benefits of EVs. As an example, GM has developed a wide range of tools to help more than 200,000 GM EV and other customers find fast, affordable and convenient charging solutions. GM's Energy Assist feature provides Chevrolet EV owners with tools to help integrate public charging into their schedules while they're on the go. Energy Assist, available to customers through the myChevrolet app, enables Chevrolet Bolt EV owners to plan and manage their routes more effectively, locate available charging stations along their route, monitor their route, and receive real-time alerts if their range projections change dramatically. We want to get as many EVs on the road as possible. By mid-decade, our intent is to sell a million EVs per year in our two largest markets: North America and China, working with our JV partners.

Impact of engagement, including measures of success

Success with the collaboration is measured by continuous improvement (CI) in EV development and sales. In 2020 GM EV sales increased to over 200,000 vehicles, a 43% increase from 2019, indicating that customers are gaining interest in a low carbon future. Our global commitment to realize an all-electric, zero-emissions future — from battery chemistry and architecture to safety validation and infrastructure — requires unprecedented investment in people and resources. This is why we've announced our intent to allocate more than \$35 billion in capital and engineering resources to EV and autonomous vehicle (AV) programs between 2020 and 2025. With our partner LG Chem Energy Solutions, in 2020 we have announced plans to build a \$2.3 billion plant in Lordstown, Ohio, to mass produce battery cells for our fleet of EVs. The plant, which will be about the size of 30 football fields, will have an annual capacity of more than 30 gigawatt hours and room for expansion. Also, as EV infrastructure is an enabler to increasing sales, GM announced its intentions to collaborate with EVgo, ChargePoint, and GreenLots — three of the nation's leading EV charging networks — to give our EV customers access to more than 31,000 charging ports, data about charge station availability and compatibility, and other real-time, data-driven features through the myChevrolet app. These CI measures demonstrate advancing collaboration with our customers toward an all EV future for automobiles. As a measure of success, in 2020 GM EVs, like Hong Guang Mini EV, Bolt EV, Baojun E300, and others avoided 953,729 tons of GHG for an increase of 80% compared to 2019.

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
- Other

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
Other, please specify (US Federal EV Tax Credit)	Support	GM has worked closely and consistently with allies and champions in Congress to extend and reform the federal EV tax credit. Purchase incentives are crucial for the mainstream success of the EV market as it continues to mature.	GM supports extending the federal EV tax credit for all manufacturers with a "sunset" phasing in later in the decade.
Other, please specify (US Federal EV Infrastructure)	Support	GM has worked closely and consistently with allies and champions in Congress to extend and reform an existing federal tax credit for EV infrastructure while also designing new funding programs to support transformational investments in chargers nationwide. Ubiquitous EV charging infrastructure is a key enabler of widespread EV uptake and will be crucial for the transportation sector to achieve its emissions reduction goals. This could be achieved through standalone legislation or, perhaps more likely, a comprehensive infrastructure funding package.	GM supports the extension and reform of the Alternative Fuel Vehicle Refueling Property Tax Credit, currently due to expire at the end of 2021. GM also supports the establishment of new funding programs dedicated to investing in charger deployment in a variety of settings, including highway corridors, workplaces, and multi-unit dwellings. Promising proposals include the Clean Corridors Act and the EV Infrastructure Rebate Act.
Other, please specify (Low Carbon Fuel Standards)	Support	GM is engaged in advocacy efforts and campaigns to advocate for low carbon fuel standards (LCFS), also referred to as "clean fuels standards," in several states including Minnesota, New York, and Washington, where legislation recently passed. LCFS policies reduce emissions from transportation fuels. By design, such policies also directly incentivize private investments in public EV charging as well as fleet switching to EVs. Revenues generated by credit/deficit trading under these programs can also be reinvested in EV purchase incentives to accelerate EV sales (this is the case in California, for example). GM has submitted public comment letters in support of LCFS initiatives in Minnesota and New York and engaged in legislative deliberations in Washington.	GM supports design and implementation of LCFS policies that set an emissions intensity reduction schedule for transportation fuels similar to that already proven to be successful in California and Oregon. Revenues generated by residential EV charging under these programs should be used to fund EV purchase incentives and/or other strategic investments that accelerate the development of a broadly based EV market.

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

Auto Innovators is comprised of the manufacturers producing nearly 99% of new cars and light trucks sold in the U.S., as well as original equipment suppliers, technology and other automotive-related companies. Auto Innovators actively engages with policymakers, legislators and regulators to ensure that the voices of its members and their employees are heard in policy discussions across a range of topics.

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Auto Innovators represents an industry that is committed to developing innovative technologies that provide real-world solutions, increase energy efficiency, reduce environmental impact, and provide the widest range of options to meet our customers' driving needs. With respect to climate change, Auto Innovators recognizes that market-mechanism are widely understood to be the most efficient policy tools available for achieving emissions reductions across the entire economy. The association has supported market-based approaches around the country, including the Transportation and Climate Initiative and LCFS policies. More broadly, Auto Innovators stresses that the auto industry has made major investments in electric vehicle technology and is committed to seeing the EV market succeed. However, that success continues to require comprehensive policy support in the form of purchase incentives, investments in infrastructure and a single, national program of vehicle emissions regulation that recognizes the business realities facing an industry in transition.

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

GM is an active member of Auto Innovators and works to shape the association's positions through regular working and executive group engagements and collaboration.

C12.3e

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

GM was a founding signatory for the Renewable Energy Buyer's Alliance (REBA) and a founding member of REBA, along with the Business Renewables Center. GM is an active member of Solar Energy Industry Association (SEIA) and American Wind Energy Association (AWEA).

In early 2019, GM began a partnership with Google, Facebook, Walmart, and more than 300 other companies to launch REBA as a standalone entity—the largest group of corporate renewable energy buyers in the United States. By working to unlock the marketplace for organizations to buy renewable energy, REBA hopes to bring more than 60 gigawatts (GW) of new renewables online in the U.S. by 2025. The new association functions as a membership organization spanning diverse industries and business types, and whose leadership circle alone represents annual revenues of \$1 trillion, millions of jobs and more than 1 percent of U.S. annual electricity consumption (48 terawatt-hours).

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?

GM's Global Public Policy (GPP) group is responsible for ensuring that all of our direct (e.g.: government relations) and indirect activities (e.g.: membership in various organizations) that influence climate change policy are consistent with the Company's climate change strategy. GPP has three primary business processes in place to ensure consistency between our actions and strategy:

- 1) Policy position development process
- 2) GM Political Action Committee candidate selection process
- 3) Strategic External Stakeholder Engagement process

Overseeing the first three processes and supporting the fourth process is the GPP leadership team which includes GM's Executive Vice President of Global Public Policy and direct reports. GM's Executive Vice President of Global Public Policy is on GM's Executive Leadership Team, GM's most senior management body which includes the CEO, CFO, and President. Regular weekly and monthly meetings have been established to review, analyze, debate, and decide on positions and partnerships to ensure consistency between the Company's strategy, action, and position on climate change. On a monthly basis, GM's Board of Directors also receives updates on policy-related activities. GM's Vice President for External Affairs and other GPP leaders ensure day-to-day consistency between our actions and strategy. GM belongs to numerous organizations that take positions on many issues. It is not uncommon that an organization take a position that differs from GM's. When this occurs, GM works to express its views and shape the organization's approach. For example, General Motors is a member of the U.S. Chamber of Commerce and has actively engaged with the organization over the past year in support of their ongoing evolution on climate policy. Representatives of General Motors' Public Policy team have had discussions with Chamber staff and responded to formal solicitations for input from members to make clear that GM believes the Chamber should embrace a more progressive approach to the climate challenge, including support for market-based emissions reduction policies and U.S. participation in the Paris Agreement. Our encouragement, alongside that of other members, contributed to the Chamber's recently updated and improved position on these issues.

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, incorporating the TCFD recommendations

Status

Complete

Attach the document

1
GM_2020_SR 5-9-2021.pdf

Page/Section reference

GM's 2021 ESG report includes 55 references to Climate Change, here are some references - Page/Section:10/2, 13/last, 14/4, 15/1-2, 17/last, 18/1, as well the TCFD section is on pages 195-222.

Content elements

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

Comment

Our ESG report for 2021 was kicked off with a statement from our Chairman and CEO: Decarbonizing our business is the right thing to do. Last year, amid the pandemic, we made a strategic decision to accelerate our zero-emissions future by investing more than \$35 billion on EVs and AVs through 2025, allowing us to offer 30 EVs globally by the same year. This is how we will bring everybody in on the all-electric future: EVs that are fun to drive for every lifestyle and price point. I am encouraged by how many other companies share our goal of creating a better future. Yet, it's just as important to recognize that how we get there matters. Once-in-a-century technology transformations like these often leave people behind. At GM, the transition will be equitable and inclusive, with our longstanding leadership in fostering diversity.

C15. Signoff

C-FI

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

Not Applicable

C15.1

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

	Job title	Corresponding job category
Row 1	Vice President of Sustainable Workplaces and Chief Sustainability Officer of General Motors Company	Chief Sustainability Officer (CSO)