

Module: Introduction**Page: Introduction****CC0.1****Introduction**

Please give a general description and introduction to your organization.

General Motors is one of the world's largest automakers and traces its roots in the U.S. back to 1908. Based in Detroit, Michigan, GM employs 225,000 people in 396 facilities across six continents.

GM offers a comprehensive range of vehicles and services in more than 120 countries around the world. The largest national market for its products is China, followed by the U.S., Brazil, United Kingdom, Germany, Canada and Italy. Along with its strategic partners, GM produces cars and trucks, and sells and services for these vehicles through the following brands: Chevrolet and Cadillac globally, and Baojun, Buick, GMC, Holden, Isuzu, Jiefang, Opel, Vauxhall, and Wuling in certain regions or specific countries.

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

More information on the new GM is available at www.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, it continually assesses and takes steps to reduce the environmental impact of its products and operations. Focusing on areas such as energy management, carbon and waste intensity reduction, resource preservation and more efficient vehicles through its technological advances, global reach and innovative employees, helps the Company reduce its environmental footprint and also share best practices around the world 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.

The GM Environmental Principles are the foundation for the Company's environmental efforts and regional-specific policies around the world. Developed over 20 years ago, the Environmental Principles state:

As a responsible corporate citizen, GM is dedicated to protecting human health, natural resources, and the global environment. This dedication reaches further than compliance with the law to encompass the integration of sound environmental practices into our business decisions.

The following environmental principles provide guidance to GM personnel worldwide in the conduct of their daily business practices.

- We are committed to actions to restore and preserve the environment.

- We are committed to reducing waste and pollutants, conserving resources, and recycling materials at every stage of the product life cycle.
- We will continue to participate actively in educating the public regarding environmental conservation.
- We will continue to pursue vigorously the development and implementation of technologies for minimizing pollutant emissions.
- We will continue to work with all governmental entities for the development of technically sound and financially responsible environmental laws and regulations.
- We will continually assess the impact of our plants and products on the environment and the communities in which we live and operate with a goal of continuous improvement.

GM also maintains Environmental Performance Criteria (GM EPC) to support the consistent implementation of the GM Environmental Principles across the globe, particularly where regulatory programs do not clearly address those goals. The GM EPC supplements applicable legal requirements by setting baseline environmental management and performance regardless of where GM operations are located. The GM EPC provides a common process for planning and implementing resource conservation and pollution prevention or control measures.

CC0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist

you in completing your response.

Select country
United States of America
Rest of world

CC0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

(i) The Governance and Corporate Responsibility Committee (GCRC) of the GM Board of Directors (ii) is comprised of three independent directors. The GCRC provides oversight and guidance to management on policies to support the Company's progress in growing the business globally within the framework of its core values, including Climate Change. The GCRC discusses, and 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. Company functions reviewed by the GCRC include Legal, Global Public Policy, sustainability, corporate social responsibility, and philanthropic activities.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Corporate executive team	Monetary reward	Emissions reduction target Energy reduction target	GM has a "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. Members of the Corporate Executive Team related to facilities have meeting Energy targets in each region as one of their goals that relates to compensation.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Business unit managers	Monetary reward	Emissions reduction target Energy reduction target	GM has a "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. Business Unit managers have meeting Energy targets for their facilities as one of their goals that relates to compensation.
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Other: Behaviour change related indicator	United States facilities participate in an Employee suggestion program, which provides a 50/50 split of savings for projects suggested by employees that are implemented up to a sizeable maximum award for any category of projects, with many energy savings or renewable energy suggestions being submitted.
Energy managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction target Efficiency project	Commitment and Accountability Partnership is an employee evaluation process which includes attainment of energy and carbon reduction goals for energy managers.

Further Information

Page: CC2. Strategy

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually	Board or individual/sub-set of the Board or committee appointed by the Board	GM has manufacturing facilities in 30 countries and sells its products in over 100 countries and focuses its risk management in these areas.	> 6 years	One of the most significant risks likely to impact GM are regulatory risks. Due to the potentially catastrophic effects of climate change, governments around the world have or are likely to enact policies and regulations that could impact our operations and products. Because it may take 3-5 years to design and develop a vehicle before it is launched in the market and then remain competitive and compliant for another 4-7 years, GM must have a long-term approach to regulatory risks.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

The Chief Risk Officer of GM is Mary Barra, also Chairman and CEO. The Risk Committee of the Board 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)—executives who directly report to the Executive Leadership Team (ELT). 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 and approval by the ELT.
- (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 ELT and the Board.
- All other risks have either an approved mitigation plans and are reviewed at least once a year by the ELT, or after being fully analyzed, are put on a "watch list" and

are monitored by the risk officer and their respective ELT 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 supplier selection. 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. Lessons learned are incorporated into future site planning, supplier selection process, and risk mitigation and strategic development.

CC2.1c

How do you prioritize the risks and opportunities identified?

Risks and opportunities are prioritized based on frequency of occurrence, how quickly they may materialize, and on their potential impact to the Company. Impact may be measured by a number of variables including reputational, operational, revenue, etc. With regard to climate change, risks and opportunities vary from government regulations to supply chain disruption. These are prioritized differently based on frequency of occurrence, time to respond, and impact. For example, government regulations such as new fuel economy/CO2 tailpipe emissions are occurring at a high frequency, but the time to respond is generally adequate to execute mitigation plans that minimize the impact to the Company. Company level Risks and opportunities are categorized as Tier 1, 2 or 3 based on frequency, how quickly they may materialize, and on their potential impact to the Company. Impact may be measured by variables including reputational, operational, revenue, etc.

- All Tier 1 have approved mitigation plans, and are reviewed in detail regularly by the ELT and by the Board.
- All Tier 2 risks have approved mitigation plans and are reviewed at least once a year by the ELT and by the BOD.
- All Tier 3 risks have been fully analyzed, put on a “watch list” and are regularly reviewed by the risk officer and their respective ELT member

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

i. How has the business strategy been influenced? Climate change has influenced our short- and long-term business strategy. We recognize that we need to find lower carbon solutions for our products and operations and have publicly stated that we see an economic opportunity by lowering our carbon footprint. Our business strategy includes five key priorities, namely 1) Earn Customers for Life; 2) Grow our Brands; 3) Lead in Technology & Innovation; 4) Drive Core Efficiencies; and 5) Build a Culture to Win.

In the short term (0-5 years), GM is responding to climate change by setting aggressive energy and GHG intensity reduction targets through 2020. The internal process used is to integrate energy reduction into our business plan. Annually, we develop energy and GHG reduction targets at a global, regional, and facility level and include methods in our annual business planning process which GM calls its Business Plan Deployment (BPD). These methods include behavioral - cold shutdown, energy efficiency - LED lights, HVAC controls, and low carbon solutions - for example use landfill gas to generate electricity. Each month data is collected on energy use and carbon emissions performance which is compared, at each site, to the target and if it is not met, countermeasures are developed to meet the targets. An example of how this process has influenced the business strategy is the development of an ongoing dedicated fund for energy savings projects of \$20 million USD and use of energy performance contracting to fund the energy and carbon reduction methods. In 2016, energy and carbon reduction projects resulted in 4.3% carbon reduction on an absolute basis.

GM's global risk management process includes climate change issues such as policy/regulatory changes and changing consumer behaviors are discussed at our Board of Directors, Executive Operations Committee (highest management committee), Corporate Strategy Committee, and the Product Development Committee.

To achieve our long term (>5 years) carbon reduction plans, we are focusing on our total carbon footprint, including use of sold products (vehicles). For our vehicles we have established and publicly disclosed carbon reduction goals. Annually, we track our progress to these goals using market sales and measured vehicle emission factors by our Public Policy Group and regional resources. To ensure that we meet these goals on a long term basis, in 2016 we invested \$8.1B in research and development activities. This includes strategic planning to develop and bring to market affordable products that incorporate technologies that improve vehicle safety, displace petroleum with biofuels and electricity, increase fuel efficiency, reduce emissions, and provide additional value and benefits to our customers. In keeping with this strategy, we remain committed to bringing more electrified and fuel-efficient options to market. By the end on 2016, GM had over 243,000 vehicles on the road in US with some form of electrification- which includes eAssist, two-mode hybrid, extended-range electric vehicle and all electric vehicle models.

ii. What aspects of climate change have influenced the strategy?

Events such as extreme weather, national, state/provincial and/or policy changes to address climate change including new and proposed fuel economy/CO2 emission standards around the world as well as adaption purposes for consumer behavior have influenced the strategy.

iii. The most important components of the short term strategy that have been influenced by climate change:

With energy management integrated into our BPD, we're engaging employees in our efforts to reduce energy and carbon to increase awareness about climate change. We have a dedicated fund for energy and carbon reduction projects which has enabled us to further reduce energy and carbon in our facilities thanks to employee suggestions. An example of this is the implementation of team member Energy Observation Tours, which, similar to safety tours, help to find and

implement energy savings opportunities.

iv. The most important components of the long term strategy that have been influenced by climate change: We have an aggressive focus on advanced propulsion technologies that will benefit customers and the environment. We focus on inventions that make our vehicles more sustainable. We operate global engineering centers and R&D labs and collaborate with academia, suppliers and start-up companies to identify, develop and implement new technologies as well as new business models that will provide more value to our customers as well as use less materials, require less energy to build, and emit fewer GHG emissions.

v. How this is gaining you strategic advantage over your competitors?

Our R&D progress is significant. We've received more than 700 patents in fuel cell technologies since 2002--more than any other company-- and we lead all companies in terms of most U.S. clean-energy patents granted since 2002, according to Clean Energy Patent Growth Index of U.S. Patents. This effort was key to developing the Chevrolet Volt. As a result, the Chevrolet Volt is one of the most award winning vehicles on the road today and has been the best-selling plug-in vehicle in the US through 2016.

vi. What have been the most substantial business decisions made?

The most substantial business decision made for GM was our long-term strategic decision to be a leader in electrified, connected, and autonomous vehicles. The most substantial aspect of climate change that has influenced this decision was the increasing concentration of CO₂e ppm concentration in Earth's atmosphere which is leading countries around the world to enact or plan to enact increasingly more stringent fuel efficiency and CO₂ emission regulations and cities to restrict or prohibit the use of some vehicles in city centers. Climate change is influencing consumer behavior and governmental policies / regulations that affect our products, manufacturing facilities, and business models. Our strategy enables us to look for opportunities in these changing preferences and policies. GM made the following key decisions in 2016 - Operate in a more transparent manner and actively request external input from stakeholders, -Nine manufacturing commitments with 2020 targets, -Accelerate & expand the electrification of GM's global fleet to take advantage of changing consumer behaviors and preferences, -Execute a light-weighting initiative to make all of our vehicle products more fuel efficient, -Launch a new car and ride-sharing brand, MAVEN, - Invest in Lyft, a ride-sharing company, - Acquire Cruise Automation, a leader in autonomous vehicle technology, and - Provide access to registered software developers into GM OnStar's proprietary application program interface to take advantage of changing consumer behaviors with their permission.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

Yes

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

GM participates in EU Carbon Trading Scheme which sets a price on carbon for our energy efficiency efforts. In 2016 the EUTS average market price of GHG was \$5.34/ton. Our EU division purchased offsets of 190,000 tons. Also, GM participates in Korea Emissions Trading Scheme. The current price is \$20/Ton which GM uses to enhance the value of energy efficiency project opportunities.

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

- Direct engagement with policy makers
- Trade associations
- Other

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Other: Increase consumer access to electric vehicles and charging infrastructure	Support	In 2016, GM joined 45 auto-industry peers as signatories to the Guiding Principles to Promote Electric Vehicles and Charging Infrastructure, a commitment to the collaboration between the government and industry to increase consumer access to electric vehicles and charging infrastructure all across the US. This engagement deepens the partnerships and collaborative relationships that are needed to successfully drive nationwide EV adoption into the mainstream and focuses on strategizing EV infrastructure, regulatory and policy enablers at the state and federal levels, and consumer education and outreach with utilities, regulators, state agencies and EV stakeholder groups.	One example of GM support included Pacific Gas & Electric Company's application before the Public Utilities Commission of the State of California to install infrastructure to support electric vehicle charging at multi-unit dwellings, workplaces, and public interest destinations. In its application, PG&E will convene a program advisory council comprised of representatives from state agencies, ratepayer advocates, environmental justice groups, technology providers, automakers, and others to provide feedback and guidance on pilot design and implementation.
Other: Extending	Support	GM has directly supported federal and state legislation that	One example is GM's support of the State of Washington's

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
alternative fuel vehicle retail sales and use tax exemption		provides alternative fuel vehicle (e.g.: electric vehicles) incentives. Support includes written and verbal testimonies, position papers, distribution of educational material, and participation in supportive coalitions and associations.	House Bill 1925. HB1925 provides an electric vehicle sales tax exemption which would continue until 2025.

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Alliance of Automobile Manufacturers	Consistent	The trade association's position on climate change is that reducing transportation sector greenhouse gas emissions will require the mass market commercialization of electric vehicles. That includes technologies such as hybrid electrics, plug-in hybrid electrics, battery electrics, and fuel cell vehicles. Widespread consumer acceptance of these technologies will require that efforts be focused on important considerations such as: supporting infrastructure, incentives for consumer adoption, the alignment of regulatory efforts and the removal of market barriers. One example of how the trade association has attempted to influence climate change policy in 2013 is through the issuance of statements on behalf of its members. The Auto Alliance has called for a single, national program because conflicting requirements from several regulatory bodies raise costs, ultimately taking money out of consumers' pockets and hurting sales. We all want to get more fuel-efficient autos on our roads, and a single, national program with a strong midterm review helps us get closer to that shared goal."	No, since GM's position is consistent with the trade association's position.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

CC2.3e

Please provide details of the other engagement activities that you undertake

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

CC2.3f

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 to ensure 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. The GPP has four 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
- 4) GM Corporate Giving & Global Philanthropy budget and grant approval process

Overseeing the first three processes and supporting the fourth process is the GPP leadership team which includes GM's executive vice president of Law and Public Policy and direct reports. GM's executive vice president of Law and 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, analyse, debate, and decide on positions and partnerships to ensure consistency between the Company's strategy, action, and position on climate change. GM's vice president of global government relations and GM's vice president of GM North America Public Policy play a key roles in ensuring day-to-day consistency between our actions and strategy. Furthermore, GM's executive vice president of Law and Public Policy and direct reports support in a variety of ways the review and approval of organizations that receive funding primarily along the areas of STEM, Safety, and Sustainable Communities. GM's Corporate Giving and Global Philanthropy also provides funding to address energy and environmental issues. Therefore, organizations addressing climate change such as the World Wildlife Fund are recipients of philanthropic grants. An example of aligning process with climate change strategy is GM's recent contribution to the WWF in support of science based targets and renewable energy. GM belongs to numerous organizations that take positions on many issues. It is not uncommon that an organization may take a different position than GM. In regards to climate change, GM makes public its position on climate to ensure there is no confusion on where GM stands. However, GM may consider leaving an organization as it did when GM decided to no longer provide funding to the Heartland Institute and American Legislative Exchange Council due to their positions against addressing climate change.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Intensity target
Renewable energy consumption and/or production target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
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CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1+2 (location-based)	100%	20%	Metric tonnes CO2e per vehicle produced*	2010	0.93	2020	No, but we anticipate setting one in the next 2 years	GHG emissions from our manufacturing and non-manufacturing operations are included in this target and the total emissions normalized by vehicle production. We are on the glide path to achieve the goal. GM is in the process of setting Science Based Targets.
Int2	Scope 3: Use of sold products	24%	15%	Metric tonnes CO2e per vehicle produced*	2011	212	2016	No, but we anticipate setting one in the next 2 years	Annual US vehicle emissions, Includes all U.S. light-duty vehicle performance and associated regulatory flexibilities. A period of sustained low fuel prices weakened consumer interest in lower-emission vehicles between this commitment's baseline year in 2011 and its terminal year in 2016, resulting in limited progress.
Int3	Scope 3: Use of sold products	10%	27%	Metric tonnes CO2e per vehicle produced*	2011	135	2020	No, and we do not anticipate setting one in the next 2 years	Annual European Union vehicle emissions, which Includes vehicles manufactured by Opel/Vauxhall, GM Korea and GM North America. In 2017, GM announced divestiture of most of its assets in EU and will not be including these EU vehicles in our Science Based targets in the future.
Int4	Scope 3: Use of sold products	49%	28%	Metric tonnes CO2e per vehicle produced*	2013	180	2020	No, but we anticipate setting one in the next 2 years	Annual China vehicle emissions, includes all light-duty vehicle performance and associated regulatory flexibilities

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	8	No change	0	Absolute emissions for our facilities is highly sensitive to production volume, which is unknown in future years, e.g. 2020. Assuming carryover sales volume from 2016, the absolute emissions would reduce at the same percentage as the intensity target. As our financial goals are to grow the business, depending on the rate of vehicle sale, if the rate is higher than intensity reduction, an increase in absolute emissions would occur.
Int2	No change	0	No change	0	A period of sustained low fuel prices weakened consumer interest in lower-emission vehicles between this commitment's baseline year in 2011 and its terminal year in 2016, resulting in limited progress.
Int3	No change	0	Decrease	10	Absolute emissions for vehicles are dependent on sales volume and mix, which is unknown in future years, e.g. 2020. Assuming carryover sales volume from 2016, the absolute emissions is estimated to reduce by 10%.
Int4	No change	0	Decrease	12	Absolute emissions for vehicles are dependent on sales volume and mix, which is unknown in future years, e.g. 2020. Assuming carryover sales volume from 2015, the absolute emissions is estimated to reduce by 12%.

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity consumption	2016	292536	3%	2050	100%	GM announced a renewable energy goal in September 2016 to use 100% renewable electricity by 2050 in our global facilities operations.

CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Int1	60%	83%	GM is ahead of our glide path to meeting our 2020 Scope 1 and 2 public reduction goal
Int2	100%	49%	A period of sustained low fuel prices weakened consumer interest in lower-emission vehicles between this commitment's baseline year in 2011 and its terminal year in 2016, resulting in limited progress.
Int3	56%	31%	
Int4	43%	29%	
RE1	0%	3%	GM exceeded its goal to source 125 MW of RE by 2020, four years early. The 100% RE by 2050 goal was established in 2016.

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

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

CC3.2a

Please 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	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Electric vehicles and extended range vehicles sold globally with lower emissions than comparable vehicles available for sale.	Low carbon product	Other: US EPA www.fueleconomy.gov	0.4%	Less than or equal to 10%	GM produces Electric vehicles and extended range vehicles sold globally (Volt and Bolt) with lower emissions than comparable internal combustion vehicles sold. Comparing similar vehicles for sale, using US EPA fuel economy comparison at www.fueleconomy.gov GM's sales of Volt and Bolt vehicles avoids 40,677 metric tons per year GHG

CC3.3

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

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	449	0
To be implemented*	0	0
Implementation commenced*	0	0
Implemented*	325	9579710
Not to be implemented	0	0

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	Optimize paint booth operations, variable speed compressors, recirculate booth air in paint shops, 3 wet paint process, and presence sensor controls to shut down equipment during non-production.	299594	Scope 1 Scope 2 (location-based)	Voluntary	34141448	59121634	1-3 years	6-10 years	
Energy efficiency: Building services	Optimize heating systems and controls, install LED lights and occupancy sensors, steam elimination, install variable speed drives on pumps and fans and optimize building and energy management systems.	17458	Scope 1 Scope 2 (location-based)	Voluntary	2326165	4726665	1-3 years	6-10 years	
Behavioral change	(51) initiatives to improve shut down of energy using Energy observation tours and manual procedures at team level on plant floor. Multiple initiatives to optimize operations of equipment, building conditions, and shut down for energy conservation.	8110	Scope 1 Scope 2 (location-based)	Voluntary	1414333	0	<1 year	<1 year	
Energy efficiency: Building fabric	Insulate windows and doors, repair roof vents, and build construction wall to isolate unused areas	10973	Scope 1 Scope 2 (location-based)	Voluntary	978217	2019877	1-3 years	6-10 years	
Waste	Reduction, reuse, and recycle	9134188	Scope 3	Voluntary	1000000000	0	<1 year	<1 year	GM uses EPA

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
recovery	of waste from operations provided a large cost savings and avoidance of GHG emissions as calculated from EPA WasteWise.								WasteWise program to calculate carbon emissions and avoided carbon from reduction, reuse, and recycle of waste products. This effort also promotes our landfill free initiative where we have 152 facilities that are landfill free.
Transportation: fleet	Partnering with our logistics suppliers, GM initiated 893 carbon and cost savings projects in 2016. These included container modifications, equipment changes, frequency changes, mode changes, scheduling optimizations, and route redesigns.	63283	Scope 3	Voluntary	122225882	0	<1 year	<1 year	
Product design	GM produces Electric vehicles and extended range vehicles sold globally with lower emissions than comparable vehicles available	40677	Scope 3	Voluntary	0	8100000000	>25 years	<1 year	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	for sale. Comparing similar vehicles for sale, using US EPA fuel economy comparison at www.fueleconomy.gov GM's sales of Volt and Bolt vehicles resulted in 40,667 tons of GHG avoided in 2016.								
Low carbon energy purchase	Purchase steam from low carbon waste to energy plant and renewable energy sources.	3100	Scope 1 Scope 2 (location-based)	Voluntary	0	0	<1 year	<1 year	
Low carbon energy installation	Installed ground mounted solar and roof mounted solar systems.	2327	Scope 2 (location-based)	Voluntary	0	0	<1 year	21-30 years	

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy	US and Canada set aside \$20M for energy efficiency projects that follow a common process to deliver substantial savings

Method	Comment
efficiency	year over year. Typical practice is that any project with less than an average 2 year payback project is implemented and longer payback projects are implemented with either other asset sustainment monies or Energy Performance Contracting. Examples are listed in 3.3b as LED lighting, Variable speed drives, steam elimination, and others. GM used Energy Performance Contracting in USA and Europe to implement longer payback projects and avoided an additional \$10M investment.
Employee engagement	US Employee suggestion program provides sharing in savings of projects, including energy that are suggested by employees and implemented.
Partnering with governments on technology development	DOE grants for vehicle development and manufacturing.
Compliance with regulatory requirements/standards	New product designs and improved manufacturing to meet increasingly stringent regulations driven by climate change.
Internal incentives/recognition programs	GM Team recognition program began in 2011 which provides a method to recognize employees both monetarily and other for performance. Many awards have been issued for energy efficiency and conservation performance resulting in GHG reductions.
Other	Dedicated process to approve onsite or offsite renewable energy projects: Established process to review offsite Power Purchase Agreements (PPAs) to support GM's RE100 efforts. During the reporting year, GM executed 50MW, adding to the current portfolio of 64MW. GM's PPAs executed in late 2014 and 2015, for a total of 64 MW, started operations December 2016. The 2016 PPA for 50 MW will come online in 2018. All of GM's renewable efforts are reported biannually to GM's financial risk committee.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: CC4. Communication

CC4.1

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	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	Page 5/Paragraph 2, Page 7/Paragraph 5, Page 8/Paragraph 3	https://www.cdp.net/sites/2017/64/7164/Climate Change 2017/Shared Documents/Attachments/CC4.1/Climate Change Pages_from GM_10-K 2016 2-7-2017.pdf	
In voluntary communications	Complete	Page 33 / Paragraphs 1,3,6 ; Page 36 / Paragraph 2,3,4; Page 109 / Paragraph 5; Page 126 / Paragraph 2; Page 129 / Paragraph 2; Page 166 / Paragraph 3	https://www.cdp.net/sites/2017/64/7164/Climate Change 2017/Shared Documents/Attachments/CC4.1/Climate Change Pages_from_GM_Sustainability_Report 2016.pdf	

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Product efficiency regulations and standards	<p>(i) Currently, GM estimates that nearly 90 percent of the vehicles we sell must comply with an aggressive level of fuel-economy and carbon emissions regulation. Vehicle Emission Standards are becoming more stringent in major markets where we operate including Brazil, Canada, China, Europe, South Korea, and the United States. Throughout these regions, vehicle emission standards are being phased in now through 2025. In some cases, existing technology is not sufficient to meet the new standards and new technology must be developed and implemented. (ii) There is a risk that these government policies could</p>	Increased operational cost	1 to 3 years	Direct	Virtually certain	High	An estimated 1% increase in research and development costs would cause an increase in expense of \$81 Million USD to GM.	GM believes the key to developing sustainable transportation is the development of energy alternatives and advanced technologies to reduce dependency on petroleum, improve fuel economy and reduce emissions. GM established a series of product commitments around expanding electrification, increasing fuel economy and reducing the CO2 emissions of our fleet. To meet those commitments, GM invested heavily in research and development on electrification and increasing fuel economy of our vehicles. The Chevrolet Volt and Cruze Eco are some	GM's current amount of research and development cost is \$8.1 Billion.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>significantly affect GM plans for product development and could make us subject to various penalties or restricted product offerings to remain in compliance as well as spend additional monies on research and development.</p>							<p>of examples of products that have been introduced into the market place. Because many of our products are built on common architectures, GM vehicles around the world will benefit from these efficiency gains. We expect that to comply with U.S. standards, we will be required to sell a significant volume of hybrid or electrically powered vehicles throughout the U.S., as well as implement new technologies for conventional internal combustion engines, all at increased cost levels. We have committed to work with EPA, the NHTSA, the states, and other stakeholders in support of a strong national program to reduce oil consumption and address global climate change.</p>	

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	(i) Increases in the frequency of drought conditions can further depress water availability for production in water-stressed areas (ii) GM has production facilities in Mexico, an area that was hit hard by drought in 2016, and there is a risk that increases in the frequency of such events could disrupt production due to lack of water availability. GM de Mexico accounts for about 7% of total GM global production.	Reduction/disruption in production capacity	Up to 1 year	Direct	Likely	Low	Mexico accounts for about 7% of total GM global production and a one month disruption of production could result in loss of \$54 Million in net income.	GM integrated water management into its annual business planning process, or Business Plan Deployment plan (BPD), similar to energy and carbon. Targets are set for each facility to meet a 2020 Manufacturing Commitment to reduce water use intensity by 15% (on a per vehicle basis) by 2020 (2010 baseline). Reduction methods are implemented at a facility level and include conservation with behavioral activities,	Such water treatment systems, like the one installed in San Luis Potosi, require an investment of approximately \$12 million more capital than traditionally engineered systems.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>improving equipment efficiency to reduce, and reuse. An example of water reuse is in paint shops, water is reused from various stages from high purity to low purity to reduce rinse water use. As of 2016, GM has reduced water use intensity by 12% compared to 2010. When plants are located in water-stressed areas, special consideration is given to water treatment technologies. Minimizing water use and withdrawals allows the plant to minimize the stress it is placing on local water sources, which in turn helps lessen the risk that, in times of drought,</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>local water sources will have been depleted beyond carrying capacity. GM's responsible use of water also reduces the risk that GM's operating licenses would be revoked. Specific example: In our San Luis Potosi plant, a closed loop water system was engineered to reuse 90% of the facility's wastewater for the next cycle of plant operations and the remaining 10% is sent to an onsite pond where it evaporates. The plant has reduced its water withdrawals by 90% by reusing wastewater.</p>	

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	Changing consumer behavior could weaken the demand for our higher margin full-size pick-up trucks and sport utility vehicles, which could reduce our market share in affected markets, decrease profitability, and have a material adverse effect on our business if we are unable to offer alternatives that are of interest to our customers. (i) Volatility in fuel pricing and tax incentives may affect consumer behavior. As of 2016, carbon-pricing schemes are operating in at least 33 countries and 18 sub-national jurisdictions, covering around 20 percent of global emissions. Though	Reduced demand for goods/services	1 to 3 years	Direct	More likely than not	High	On a global basis, a decrease in sales due to changing consumer behavior of 1% for example may result in a decrease in net income of \$93 million	Continuous innovation and advanced technology development is key to keeping up with changing consumer behavior. One way GM achieves this is through our global network of engineering centers and R&D labs around the world as well as active collaboration with academia, suppliers and start-ups to identify and develop new technologies centered on five strategic areas: 1. Automotive Cleantech that improves fuel economy and decreases mobile emissions through advanced engine and transmission technology, next-generation batteries and electric motors, and power electronics; 2. Connected Vehicles	In 2016, GM invested approximately \$8.1 billion in research and development activities.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>CO2 pricing schemes vary widely around the world, all are intended to encourage consumers to purchase vehicles that emit less carbon or, at a minimum, to help raise public awareness about the importance of CO2 reduction. (ii) There is a risk that there may be less demand for GM's larger, less fuel efficient vehicles. Changing consumer behavior could weaken the demand for our higher margin full-size pick-up trucks and sport utility vehicles, which could reduce our market share in affected markets, decrease profitability, and have a material adverse effect on our business if we are unable to offer</p>							<p>that leverage data, enhance vehicle safety and connect drivers with their digital worlds in a responsible way; 3. Advanced Materials that lead to more fuel-efficient vehicles through reduced mass; Sensors, Processors and Memory that can accelerate the advent of the autonomous vehicle; 4. Manufacturing Technologies that yield cost and quality improvements while decreasing our use of resources and materials. We currently offer 11 vehicles with some form of electrification such as the Chevrolet Volt and Opel Ampera. In 2016 we offered the Chevrolet Bolt electric vehicle; 5. We plan to continue to invest heavily to support the expansion of our electric vehicle</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	alternatives that are of interest to our customers.							offerings and in-house development and manufacturing capabilities of advanced batteries, electric motors and power control systems.	

CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Product efficiency regulations and standards	(i) Vehicle Emission Standards are becoming more stringent in major markets where GM operates including Brazil,	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium-high	An estimated 1% increase in sales from demand for more energy efficient vehicles would result in additional	The best practices GM has established in mature markets to meet the stringent emissions and diagnostic requirements	With respect to existing fuel efficient products, the costs for developing these products has already been

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Canada, China, Europe, South Korea, and the United States. Throughout these regions, vehicle emission standards are being phased in now through 2025. (ii) This may represent an opportunity to sell more GM vehicles that have incorporated advanced technologies. Examples of these introduced into the marketplace are: downsizing, turbocharging, “stop-start” technology, direct injection, variable valve timing and cylinder deactivation to improve the thermodynamic efficiency of</p>						net income of \$93 million.	enable us to quickly develop vehicles to meet the evolving emission requirements in other markets around the world. In addition, GM's global vehicle R&D strategy is driven by a focus on energy alternatives and advanced technologies that could displace petroleum, help address energy security, improve fuel efficiency and reduce emissions, all of which are key to developing new products that support sustainable mobility. Examples of these introduced into the marketplace	accounted for. In pursuit of the development of new products and technology, GM invested \$8.1 billion in research and development activities in 2016.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	gasoline engines.							<p>are: downsizing, turbocharging, "stop-start" technology, direct injection, variable valve timing and cylinder deactivation to improve the thermodynamic efficiency of gasoline engines. By educating consumers and other stakeholders on existing fuel-efficient product offerings, our market share in these markets could increase. An example of consumer messaging is from Chevrolet: "Chevrolet offers a line-up of fuel-efficient sedans and hatchbacks like the 2017 Malibu Hybrid, which offers a 1.8L</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								hybrid engine with an EPA-estimated 49 MPG city.† Malibu is designed to help you save gas with stop/start technology that can automatically shut off the engine when the car is stopped. When the brake is released, the engine restarts seamlessly. So smooth, you'll barely notice the transition. Just another way Chevrolet cars deliver precise engineering."	
Cap and trade schemes	Energy Efficiency projects implemented in our manufacturing operations in Europe results	Reduced operational costs	1 to 3 years	Direct	Virtually certain	Low-medium	In 2016, GM needed 190,000 EUAs (tonnes) costing about \$1 Million USD. The	Based on our ability to implement energy efficiency projects we are able to purchase less	Energy efficiency projects are implemented on a pay for performance basis resulting in

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>in the need to purchase less European Emissions Allowances (EUAs). Implementing energy efficiency in GM operations in EU using Energy Performance Contracting or Opel Vauxhall's Pay for Performance method represents an opportunity for us to reduce our operational costs by lowering the purchase requirement for EUAs. Examples include installation of LED lights, improved controls for shutdown, variable speed drives on motors, and</p>						<p>avoided cost from implementing energy efficiency projects, avoiding 13,057 tonnes of Scope 1 GHG, is worth \$75,000 as reduced operating cost.</p>	<p>EUAs resulting is reduced operating cost. Energy efficiency projects include: Install direct fired gas burners on paint booth air supply units to replace steam, process pump VSD controls, automate process shutdown controls, optimize paint oven burner and controls, and heat recovery from process equipment.</p>	<p>positive cash flow in the year implemented. (Similar to Energy Performance Contracting performed in US). Therefore the cost to manage energy efficiency is zero.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	paint operations improvements.								

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation pattern	As extreme drought conditions occur, GM facilities in Mexico with water reuse systems are resilient and can continue to operate. (i) Increases in the frequency of drought conditions can cause disruptions to GM production in our highest water use and production critical process of painting vehicles, due to water stress. Proper	Increased production capacity	1 to 3 years	Direct	About as likely as not	Low-medium	As Mexico accounts for about 7% of total global production and a one month disruption of GM's production could result in loss of \$54 Million in net income, the opportunity to GM is the continuance of production avoiding a potential loss of \$54 Million USD.	Plants located in water-stressed areas, such as Mexico, are given special consideration by GM for water treatment technologies. Minimizing water use and withdrawals from shared water sources allows the GM plant to minimize the stress it is placing on local water sources, which in turn helps lessen the risk that, in times of drought,	Such water treatment systems, like the one installed in San Luis Potosi, require an investment of approximately \$12 million more capital than traditionally engineered systems.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>mitigation using water conservation and water reuse allows production to continue without added water stress on local water systems (ii) GM's water management approach at production facilities located in water stressed areas offers an opportunity to continue production without disruptions due to lack of water for people and critical paint shop production. In our San Luis Potosi Assembly plant in Mexico, GM uses a Zero Liquid Discharge system to minimize the reliance on well water withdrawal.</p>							<p>local water sources will have been depleted beyond capacity potentially causing production disruption. An example of the engineering method used is in our San Luis Potosi plant, where a closed loop water system was engineered to reuse 90% of the facility's wastewater for the next cycle of plant operations and the remaining 10% is sent to an onsite pond where it evaporates. The plant has reduced its water withdrawals by 90% by reusing wastewater. The plant also reduced its water intensity by 10% since opening using BPD management methods and remains our best operating plant for water efficiency.</p>	

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	<p>(i) As consumer preferences are expected to follow a trend toward more environmentally friendly, manufacturing companies, GM has publicized the environmental attributes of a new engine facility in Brazil, including Leadership in Energy and Environmental Design (LEED) Gold certification, Water reuse using an Engineered Wetland, and 350 KW Photo-voltaic (PV) onsite renewable energy.</p> <p>(ii) This may represent an opportunity for us to sell more of our vehicles that have been manufactured</p>	Increased demand for existing products/services	1 to 3 years	Direct	More likely than not	Low-medium	On a global basis, an increase in sales due to changing consumer behavior of 1% for example may result in an increase in net income for GM of \$93 million USD.	The approach used is to showcase GM's environmental and energy leadership by communicating "Leadership in Energy and Environmental Design" (LEED) certifications for manufacturing facilities. An example is GM's manufacturing facility, Joinville Industrial Complex, in the state of Santa Catarina, Brazil is a new production facility that includes leading systems of energy efficiency and environmental protection that enabled the Company to obtain the global	GM Brazil invested in excess of \$174 million in the Joinville Industrial Complex that includes low carbon efficiencies, water reuse, and other environmental leadership installations.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>from a company that shows leadership in energy and the environment that appeals to carbon conscious consumers.</p>							<p>(LEED) certification. It will also have an innovative treatment of effluent and sewage with stabilization ponds and recycling of industrial water by reverse osmosis, along with other initiatives. The system will make it possible to reuse up to 22 thousand cubic meters of water a year. The drinking water saved is equivalent to the volume needed meet the needs of 80 low-consumption homes. Through the reverse osmosis system, it will be possible to supply 100% of the consumption of the engine plant's non-drinking water. The treated,</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								highly pure water will be used for non-drinking purposes (industrial process, bathrooms, gardening, and floor cleaning).	
Changing consumer behavior	(i) Consumer preferences are expected to follow a trend toward more environmentally friendly, advanced technology products. (ii) This may represent an opportunity for GM to sell more of our vehicles that have incorporated advanced technologies such as hybrid/electric vehicles and fuel cells, and other environmental features (such as recycled and recyclable materials) and to appeal to carbon conscious consumers	Increased demand for existing products/services	3 to 6 years	Direct	More likely than not	Low-medium	On a global basis, an increase in sales due to changing consumer behavior of 1% for example may result in an increase in net income to GM of \$93 million USD.	In 2016, GM introduced a series of product commitments around expanding electrification, increasing fuel economy and reducing the CO2 emissions of our fleet. The Chevrolet Volt, Bolt, and Cruze Eco are some of our product proof points. Opel/Vauxhall is in the process of rolling out 13 new powertrains that represent an 80 percent renewal of its engine portfolio. The end result by 2017 will be a GM fleet that sets a new	With respect to existing fuel efficient products, the costs for developing these products has already been accounted for. In pursuit of the development of new products and technology, we invested \$8.1 billion in research and development activities in 2016.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	through our wider carbon reduction initiatives.							performance level in fuel economy and carbon emissions around the globe. Because many of our products are built on common architectures, GM vehicles around the world will benefit from these efficiency gains.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Fri 01 Jan 2010 - Fri 31 Dec 2010	2568555
Scope 2 (location-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	5441974
Scope 2 (market-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	5441974

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

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

US EPA Mandatory Greenhouse Gas Reporting Rule

Australia - National Greenhouse and Energy Reporting Act

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fifth Assessment Report (AR5 - 100 year)
CH4	IPCC Fifth Assessment Report (AR5 - 100 year)
N2O	IPCC Fifth Assessment Report (AR5 - 100 year)
HFCs	IPCC Fifth Assessment Report (AR5 - 100 year)

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	0.18	metric tonnes CO2 per MWh	US average, used EPA factors for GHG Inventories, 4-April-2014 or IPCC for other countries
Electricity	0.57	metric tonnes CO2 per MWh	Average of EGRID for US states, IPCC for other countries
Coke oven coke	0.39	metric tonnes CO2 per MWh	EPA factors for GHG Inventories, 4-April-2014

Further Information

Page: CC8. Emissions Data - (1 Jan 2016 - 31 Dec 2016)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

2003265

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We are reporting a Scope 2, market-based figure	

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO₂e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
5799436	5573992	

CC8.4

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

CC8.4a

Please 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	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Scope 1 & 2 GHG emissions from small insignificant facilities	Emissions are not relevant	Emissions are not relevant	Emissions are not relevant	Small facilities that represent insignificant GHG emissions.

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Data Gaps Metering/ Measurement Constraints	Small non-manufacturing facilities that GM does not have verified information to report carbon emissions. GM estimates that these are < 2% of our emissions.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Data Gaps Metering/ Measurement Constraints	Small non-manufacturing facilities that GM does not have verified information to report carbon emissions. GM estimates that these are < 5% of our emissions.
Scope 2 (market-based)	More than 2% but less than or equal to 5%	Data Gaps Metering/ Measurement Constraints	Small non-manufacturing facilities that GM does not have verified information to report carbon emissions. GM estimates that these are < 5% of our emissions.

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/64/7164/Climate Change 2017/Shared Documents/Attachments/CC8.6a/11102036 Verification Statement 2016 [from RPT-9].pdf	Page 2 / Section 2	ISO14064-3	94

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
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CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/64/7164/Climate Change 2017/Shared Documents/Attachments/CC8.7a/11102036 Verification Statement 2016 [from RPT-9].pdf	Page 2 / Section 2	ISO14064-3	100

CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Year on year change in emissions (Scope 1 and 2)	

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

77396

Further Information

77,396 Metric tons from Waste to Energy and Landfill gas to electric.

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
United States of America	994387
Rest of world	1008878

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
International Operations	440968
Europe	204528
South America	63381
North America	1294389

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
----------	--	----------	-----------

CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
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CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
----------	--

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
United States of America	2681566	2457603	4444123	425444
Rest of world	3117871	3116390	6256685	9876

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
International Operations	2062551	2062551
Europe	585027	585027
South America	83217	81736
North America	3068640	2844677

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
----------	--	--

CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
----------	--	--

Further Information

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

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

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	8996148
Steam	648311
Cooling	0

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

10103454

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Natural gas	9507215
Landfill gas	320709
Coking coal	196871
Other: small amounts oil, diesel, LPG	78658

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company	81891	0.55	Emission factor represents average of low carbon offset in tonnes per MWh
Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), where electricity attribute certificates do not exist or are not required for a usage claim	156271	0.3	Emission factor represents average of low carbon offset in tonnes per MWh
Contract with suppliers or utilities, with a supplier-specific emission rate, not backed by electricity attribute certificates	197158	0.75	Emission factor represents average of low carbon offset in tonnes per MWh. This is two US states with RPS that require RECs to be retired on customers behalf.

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
9560426	9267890	292536	292536	292536	

Further Information

Page: [CC12. Emissions Performance](#)

CC12.1

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

Increased

CC12.1a

Please 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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
--------	------------------------------	---------------------	--

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	4.5	Decrease	GM Carbon reduction from energy savings activities including replacing old Paint shop assets with newer more efficient ones, LED light retrofits, steam elimination, energy management improvements, variable speed drives, and other energy conservation measures accounted for 336,135 Tons CO2e reduction in 2016 or 336,135 tonnes / 7,537,660 (2015 CO2e emissions in tonnes) equal a 4.5% decrease.
Divestment	0	No change	
Acquisitions	0	No change	
Mergers	0	No change	
Change in output	5.3	Increase	GM increased production by 6.6% in 2016 resulting in 5.3% increase in emissions. Estimated at 80% emissions to production or $6.6\% \times 0.8 = 5.3\%$
Change in methodology	0	No change	
Change in boundary	1.5	Increase	Additions of facilities resulted in an estimated 1.5% increase in emissions
Change in physical operating conditions	1.2	Increase	Globally at GM locations, heating degree days and cooling degree days increased by 2% and 5% respectively generating an estimated 1.2% increase in emissions.
Unidentified			
Other			

CC12.1b

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00004690	metric tonnes CO2e	166380000000	Location-based	5	Decrease	GM's revenue grew 9% in 2016 compared to 2015 and emissions increased by 3.5% for a 5% revenue intensity reduction. For the automobile industry, revenue intensity is not a good measure of performance since revenue is not aligned with output or production. A better metric is production intensity based on vehicle output.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.77	metric tonnes CO2e	vehicle produced	10133090	Location-based	6	Decrease	GM's production grew 6.6% in 2016 and net emissions only increased by 3.5% with 4.3% reduction from energy savings projects - replacing old Paint shop assets with newer more efficient ones, LED light retrofits, steam elimination, energy management improvements, variable speed drives, and other energy

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
							conservation measures for a net 6% decrease in intensity.
0.39	metric tonnes CO2e	vehicle produced	10133090	Location-based	5	Decrease	As Automotive OEMs produce varying amounts of parts, GM is reporting Assembly plant GHG intensity also. GM's production grew 6.6% in 2016 and net emissions only increased by 3.5% with 4.3% reduction from energy savings projects - replacing old Paint shop assets with newer more efficient ones, LED light retrofits, steam elimination, energy management improvements, variable speed drives, and other energy conservation measures for a net 5% decrease in intensity.

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

Yes

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	205838	190000	386515	Facilities we own and operate
Korea ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	466811	0	360246	Facilities we own and operate

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

Centralized CO2 monitoring and procurement, Aggressive Energy Conservation, Energy Performance Contracting, Best Practice Sharing, Sharpen Energy Awareness, and Benchmarking.

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

No

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
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Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	57929643	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	100.00%	GM uses WRI protocol using life cycle detailed analysis for auto parts for company owned operations. As a calibration method, CDP Supply Chain tier 1 data is compared to improve accuracy. This data has been verified by a 3rd party in 2016.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			<p>core of which is the Comprehensive Environmental Data Archive (CEDA). CEDA provides industry average cradle-to-gate emissions factors for 430 economic sectors. CEDA's model year, 2002, has been adjusted for the reporting year, 2014, to match General Motors' activity data, i.e., spend, using industry-specific price indices from the Bureau of Labor Statistics. 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 reporting year. The methodology employed for these calculations conforms to the WRI Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Additionally, to calibrate the CEDA model, GM uses CDP Supply Chain data from Tier 1 suppliers. The data suggests that CDP Tier 1 suppliers account for about 30% of life cycle emissions substantiated from the life cycle analysis and CDP Supply Chain results.</p>		
Capital goods	Relevant, calculated	4698166	<p>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</p>	100.00%	<p>GM uses WRI protocol using life cycle detailed analysis for auto parts for company owned operations. As a calibration method, CDP Supply Chain tier 1 data is compared to improve accuracy. This data has been verified by a 3rd party</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			<p>Company's activity data combined with emissions factors from the Climate Earth's Environmental Database, the core of which is the Comprehensive Environmental Data Archive (CEDA). CEDA provides industry average cradle-to-gate emissions factors for 430 economic sectors. CEDA's model year, 2002, has been adjusted for the reporting year, 2014, to match General Motors' activity data, i.e., spend, using industry-specific price indices from the Bureau of Labor Statistics. 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 corporation for the reporting year. The methodology employed for these calculations conforms to the WRI Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Additionally, to calibrate the CEDA model, GM uses CDP Supply Chain data from our Tier 1 suppliers. The data suggests that CDP Tier 1 suppliers account for about 30% of life cycle emissions substantiated from the life cycle analysis and CDP Supply Chain results.</p>		in 2016.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	1423373	Using Australia's National Greenhouse Accounts factors 2016 (Tables 38 & 41) the fuel and energy GHG emission activities not included in Scope 1 or 2 were estimated.	100.00%	Based on the methodology used, the value is 18% and exceeds the 5% threshold of relevancy established compared to the total of Scope 1 and 2

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					emissions and therefore determined to be relevant. Reduction of Scope 1 and 2 reduces this scope 3 emission. This data has been verified by a 3rd party in 2015
Upstream transportation and distribution	Relevant, calculated	2938628	GM is a member of EPA SmartWay and used their methodology to obtain GHG emissions, based on truck distances and fuel efficiency according to GHG Protocol for GM's North America parts delivery from third party over the road logistics providers. Ocean emissions intensity was evaluated using a major supplier's carbon accounting and extrapolating using revenue intensity. Rail and Air emissions for all global upstream transportation GHG were estimated using CDP Analytics for similar companies multiplied by revenue spend. Truck emissions for rest of world were calculated using emission factors from EPA SmartWay.	50.00%	GM tracks distances and modes of transportation for disclosure and to identify opportunities for GHG and cost reduction initiatives in North America using EPA SmartWay.
Waste generated in operations	Relevant, calculated	202937	USEPA WasteWise model applied with GM Global waste data. GM avoided 9 Million metric tons by reusing, recycling, and composting significant quantities of materials.	100.00%	As GM increases its landfill free facilities, our GHG from waste is reduced accordingly. In 2016, GM avoided 9 Million tons of GHG through reduction, reuse, recycle, and composting materials and had 152 Landfill-free sites. Although CO2e reductions have reduced it to below relevant levels, we continue to treat it as relevant due to the huge offset opportunity as recycling avoids more than our scope 1 & 2 emissions combined.
Business travel	Not	62671	GHG Protocol method was used by our 3rd party	100.00%	Based on the methodology used, the

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
	relevant, calculated		travel agent to calculate Air Business travel GHG emissions for our global operations from 2013 data and updated based on number of employees.		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	Not relevant, calculated	168750	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.	100.00%	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	Not relevant, calculated	10077	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.	50.00%	Based on the methodology used, the value is 0.1% 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.
Downstream transportation and distribution	Relevant, calculated	2756687	GM is a member of EPA SmartWay and used their methodology to obtain GHG emissions, based on truck distances and fuel efficiency according to GHG Protocol for GM's North America outbound logistics from third parties over the road carriers. Ocean emissions intensity was evaluated using a major supplier's carbon accounting and extrapolating using revenue intensity. Rail and Air emissions for all global upstream transportation GHG were estimated using CDP Analytics for similar companies multiplied by revenue spend. Truck emissions for rest of world were calculated using emission factors from EPA	50.00%	GM tracks distances and modes of transportation for disclosure and to identify opportunities for GHG and cost reduction initiatives in North America using EPA SmartWay.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Processing of sold products	Not relevant, calculated	120731	SmartWay. 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.	50.00%	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	Relevant, calculated	246249473	GHG from the Use of Sold products or vehicles is calculated using the average regional CO2e emissions per vehicle multiplied by life cycle distance driven by customers of 150,000 km over 10 years and multiplied by 2016 sales volumes. 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, Europe, and China based on the most fully developed monitoring and measurement systems.	80.00%	2016 calculation of life cycle GHG from vehicles sold is done using additional regional vehicle emissions rates this year for increased granularity. This vehicle emissions portion of the category was verified by a 3rd party. Verification of GM's use of sold product was completed, but does not include HFC fugitive emissions.
End of life treatment of sold products	Relevant, calculated	4053236	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 2016.	50.00%	Design for the Environment activities provide a method for continuous improvement in End of Life GHG.
Downstream leased assets	Not relevant, calculated	20459	A portion of GM's global headquarters facility is leased to other tenants as well as a vehicle haul-away site. The GHG represents the estimated use	100.00%	Based on the methodology used, the value is 0.3% or much less than the 5% threshold of relevancy established

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			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.		compared to the total of Scope 1 and 2 emissions and therefore determined to be not relevant.
Franchises	Not relevant, calculated	213190	We market vehicles worldwide primarily through a network of independent authorized retail dealers. These outlets include distributors, dealers and authorized sales, service and parts outlets. GHG for these franchises was calculated based on 19,452 global facilities using average dealer building area and average GHG emission factors per area from data obtained from a dealer based on energy invoice data and local emission factors	50.00%	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	Not relevant, calculated	46101	Using CDP Analytics, a representative GHG net income intensity was used along with GM's financial unit's annual 2016 income, which increased in 2016, to estimate our GHG from Investment activities.	50.00%	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.
Other (upstream)					
Other (downstream)					

CC14.2

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance process in place

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/64/7164/Climate Change 2017/Shared Documents/Attachments/CC14.2a/11102036Hildreth-6-Scope 3 Verification Statement 2016.pdf	Page 2, Section 2	ISO14064-3	97

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Emissions reduction activities	2.2	Decrease	88% of GM Suppliers reporting to CDP Supply Chain reported carbon reduction activities. The LCA analysis identified 2.2% reduction, indicative of supplier actions. According to CDP Supply Chain, GM's suppliers, in total, not only allocated to GM, reduced emissions by 90 million metric tons.
Waste generated in operations	Emissions reduction activities	56.5	Decrease	EPA WasteWise model WARM shows large reduction in CO2e emissions from GM's increasing waste recycling and reuse. In 2016, GM had 152 facilities that were landfill free.
Use of sold products	Change in methodology	7.8	Decrease	Improved granularity of global vehicle emissions using distance intensities closer matched to various countries vehicle types provided a decrease in vehicle emissions estimates.

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

- Yes, our suppliers
- Yes, our customers
- Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

(i) Methods of Engagement:

- a.) GM's Global Purchasing and Supply Chain engages directly with transportation suppliers to reduce GHG of transportation activities.
- b.) Chevrolet marketing provides fuel economy messages to customers describing efficiency features of Chevrolet vehicles.
- c.) We participate in supply chain organizations that have workgroups promoting Greenhouse gas reporting and reductions between OEMs and suppliers. Automotive Industry Action Group (AIAG), Renewable Energy Buyers Alliance (REBA), Business Renewables Center (BRC), Solar Energy Industries Association (SEIA), American Wind Energy Association (AWEA) and Supplier Partnership (SP) are organizations GM partners with to engage suppliers and industry partners in

Climate Change activities. Also, in 2016, GM participated in CDP Supply Chain to further engage with more suppliers regarding Climate Change.

d.) GM has been an active partner with EPA Energy Star since 1995, a governmental organization committed to reducing energy and GHG.

e.) GM partnered with Ceres to assemble a group of external advisers representing a cross-section of GM's stakeholders including labor, investors, suppliers, and environmental NGOs to name a few. GM has committed to meeting with external stakeholders organized and facilitated by Ceres.

(ii) Prioritization Strategy:

a.) GM's Global Purchasing and Supply Chain (GPSC) identifies the highest cost and GHG routes and works with suppliers to either reduce distances traveled or change to a mode of transportation with lower cost and reduced GHG.

b.) Chevrolet Marketing focuses on the best value fuel efficiency features of vehicles for customer benefits.

c.) GM participated in 1. CDP Supply Chain to further engage with more suppliers regarding Climate Change. 2. We also held a Supplier Sustainability Summit in 2016 where Energy use and GHG emission reduction best practices were presented. 3. We released a Supplier Code of Conduct which was sent to all of GM's Tier 1 suppliers. Under the "Environment" section it says: a. Continuous Improvement : Suppliers will increase efficiency throughout their company and take measures to reduce their carbon footprint, energy use, water use, wastes, and other emissions. Doing so will improve bottom-lines and improve the environment. Over time, we expect Suppliers to establish targets and be transparent in their performance toward their targets. b. Responsible Stewardship: i. Suppliers look to conserve resources and protect the communities and environment that surrounds them. ii. We encourage our suppliers to develop and diffuse environmentally friendly technologies and to increase the use of renewable energies.

d.) In 2016, GM conducted an Energy Treasure Hunt with one of our Auto Suppliers and included 2 suppliers in GM's Treasure Hunts to train them on carbon reduction. We participate in the Automotive Industry Action Group working on benchmarking water and sharing best practices to reduce water with other OEMs and suppliers and developed a Water training webinar for suppliers in 2016.

e.) GM partnered with Ceres to assemble a group of external advisers representing a cross-section of GM's stakeholders including labor, investors, suppliers, and environmental NGOs to name a few. GM has committed to meeting with external stakeholders twice a year by a conference call or face to face meeting organized and facilitated by Ceres.

(iii) Measures of Success:

a.) GM tracks cost and GHG reduction as a measure of our success. In 2016 GM realized cost and GHG reductions from our engagement activities with transportation suppliers in North America through EPA SmartWay totaled 63,000 ton GHG reduction and \$122M USD savings.

b.) Marketing success allows GM to launch more fuel efficient or Zero emissions vehicles. In 2016, we launched the Malibu Hybrid and Bolt EV

c.) GM measures the success of our engagement with Energy Star from their recognition for outstanding performance. In 2016 GM received Partner of the Year award from Energy Star, 75 plants received Challenge for Industry recognition for reducing energy intensity by 10%, and 17 facilities received labels as Energy Star certified.

d.) GM measures success of our external stakeholder engagement process by number of topics covered, quality of feedback received, number of opportunities for engagement outside of planned meetings.

e.) Success of our engagement with CERES is demonstrated in a materiality assessment that is a focus of GM Sustainability.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Active engagement	534	60%	Measuring our supply chain's disclosure and performance related to Climate Change shows increased governance, emissions reporting, suppliers engaging with their suppliers, 9% increase in number of suppliers reporting a target, 15% increase in those reporting Climate Change risks. GM suppliers reported reduction of over 8 million tons of GHG with energy efficiency and conservation efforts. 17 Suppliers are enrolled in Action Exchange cycle for 2016-2017.

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Charles K. Stevens, III	Executive Vice President and Chief Financial Officer	Chief Financial Officer (CFO)

Further Information

Country	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
Russia										
Other										
TOTAL										

AU1.1b

Sales (in thousands) of gas/petrol vehicles - USA - Passenger vehicles

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated

AU1.1c

Sales (in thousands) of gas/petrol vehicles - USA - Light Trucks & SUVs

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated

AU1.1d

Sales (in thousands) of gas/petrol vehicles - EU

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1e

Sales (in thousands) of gas/petrol vehicles - Japan

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1f

Sales (in thousands) of gas/petrol vehicles - China - imports

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1g

Sales (in thousands) of gas/petrol vehicles - China - domestic production

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1h**Sales (in thousands) of gas/petrol vehicles - India**

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1i**Sales (in thousands) of gas/petrol vehicles - Brazil**

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.1j

Companies should provide an explanation if different vehicle segmentation is used or if data is unavailable or commercially sensitive

GM does not report data in the categories requested.

AU1.2a**Sales (in thousands) of diesel vehicles - Country totals**

Country	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
USA										
EU										
Japan										
China - imports										
China - domestic production										
India										
Brazil										
Russia										
Other										
TOTAL										

AU1.2b

Sales (in thousands) of diesel vehicles - USA

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
Passenger car total										
Light trucks & SUVs total										

AU1.2c

Sales (in thousands) of diesel vehicles - EU

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
---------------	------	------	------	------	------	------	------	----------------	----------------	----------------

AU1.2d

Sales (in thousands) of diesel vehicles - Japan

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
---------------	------	------	------	------	------	------	------	----------------	----------------	----------------

AU1.2e

Sales (in thousands) of diesel vehicles - China - imports

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
---------------	------	------	------	------	------	------	------	----------------	----------------	----------------

AU1.2f

Sales (in thousands) of diesel vehicles - China - domestic production

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.2g**Sales (in thousands) of diesel vehicles - India**

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.2h**Sales (in thousands) of diesel vehicles - Brazil**

Segment types	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
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AU1.2i

Companies should provide an explanation if different vehicle segmentation is used or if data is unavailable or commercially sensitive

GM does not report data in the categories requested.

AU1.3a**Sales (in thousands) of battery electric vehicles (BEV) by region**

Country	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
TOTAL										

AU1.3c

Sales (in thousands) of other alternatively-powered vehicles - Country totals

This category includes vehicles powered by Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), fuel cells and compressed air

Country	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2018 estimated	2019 estimated
USA										
EU										
Japan										
China - imports										
China - domestic production										
India										
Brazil										
Russia										
Other										
TOTAL										

AU1.3d

Companies should provide an explanation if different vehicle segmentation is used or if data is unavailable or commercially sensitive

GM does not report data in the categories requested.

Country	Units	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2019 estimated	2021 estimated
China - imports											
China - domestic production											
India											
Brazil											
Russia											
Other											

AU2.3b

Sales-weighted fleet average CO2 emissions for all vehicles sold, after credits received

This category includes vehicles powered by internal combustion engines as well as alternatively powered vehicles

Country	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2019 estimated	2021 estimated	Comment
USA											
EU											
Japan											
China - imports											
China - domestic production											
India											
Brazil											
Russia											
Other											

AU2.3c

Sales-weighted regulatory parameters

Country and parameter	2010	2011	2012	2013	2014	2015	2016	2017 estimated	2019 estimated	2021 estimated
USA: Sales-weighted average vehicle footprint (square feet)										
EU: Sales-weighted average running order mass (kg)										
Japan: Sales-weighted average vehicle curb weight (kg)										
China – imports: Sales-weighted average curb mass (kg)										
China – domestic production: Sales-weighted average curb mass (kg)										

AU2.3d

Companies should provide an explanation if different vehicle segmentation is used or if data is unavailable or commercially sensitive

GM does not report information in this format.

Further Information

Page: AU3. Clean Technologies

AU3.1a

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - ICE

Type	2016	2021 estimated

AU3.1b

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - Hybrids

Type	2016	2021 estimated
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AU3.1c

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - Zero emissions

Type	2016	2021 estimated
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AU3.1d

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - Transmission

Type	2016	2021 estimated
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AU3.1e

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - Body

Type	2016	2021 estimated
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AU3.1f

Auto-manufacturers only - please give the % of your range of vehicles for which the following technologies are available:

Technology category - Others

Type	2016	2021 estimated
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AU3.1g

Auto-equipment manufacturers only - please select the technology categories that are relevant to your business:

AU3.1gi

Technology category - ICE - please state if you provide the following technologies:

Type	2016	2021 estimated
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AU3.1gii

Technology category - Hybrids - please state if you provide the following technologies:

Type	2016	2021 estimated
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AU3.1giii

Technology category - Zero emissions - please state if you provide the following technologies:

Type	2016	2021 estimated
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AU3.1giv

Technology category - Transmission - please state if you provide the following technologies:

Type	2016	2021 estimated
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AU3.1gv

Technology category - Body - please state if you provide the following technologies:

Type	2016	2021 estimated
------	------	----------------

AU3.1gvi

Technology category - Others - please state if you provide the following technologies:

Type	2016	2021 estimated
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AU3.2

Auto-manufacturers only – Please provide the following details for existing and new BEV and FCV models available during the current reporting period

Model name	Technology	Market	Retail price currency	Market retail price	Range units	Urban electric range	Extra-urban electric range	Combined electric range	Minimum electric charge time (hours)	Maximum electric charge time (hours)
Chevrolet Bolt	BEV	US phased in	USD(\$)	37495	miles			238		

AU3.3

Auto-manufacturers only – Please provide the following details for existing and new PHEV models available during the current reporting period

Model name	Market	Retail price currency	Market retail price	Emissions units	Urban emissions	Extra-urban emissions	Combined emissions	Fuel consumption units	Urban fuel consumption	Extra-urban fuel consumption	Combined fuel consumption	Range units	Urban electric range	Extra-urban electric range	Combined electric range	Minimum electric charge time (hours)	Maximum electric charge time (hours)

AU3.4

Auto manufacturers only – Please indicate your spend in the following research and development (R&D) categories for the reporting year

Type	R&D spend (currency in CC0.4)	Comment
Optimizing combustion engine vehicles		
Traditional hybrids		

Type	R&D spend (currency in CC0.4)	Comment
Advanced vehicles (BEV, PHEV, FCV)		
Autonomous vehicles		
Other	8100000000	Total R&D spend

AU3.5

For both auto manufacturers and auto-equipment manufacturers: please provide an explanation if data cannot be provided according to the proposed nomenclature or if it is unavailable or commercially sensitive

GM does not report information in the format requested.

Further Information

CDP 2017 Climate Change 2017 Information Request