

**Module: Introduction****Page: Introduction**

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**CC0.1****Introduction**

Please give a general description and introduction to your organization.

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service diesel and natural gas engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Headquartered in Columbus, Indiana, (USA) Cummins currently employs approximately 55,400 people worldwide and serves customers in approximately 190 countries and territories through a network of approximately 600 company-owned and independent distributor locations and approximately 7,400 dealer locations. Cummins earned \$1.39 billion on sales of \$17.5 billion in 2016. Press releases can be found on the Web at [www.cummins.com](http://www.cummins.com). Follow Cummins on Twitter at [www.twitter.com/cummins](https://www.twitter.com/cummins) and on YouTube at [www.youtube.com/cumminsinc](https://www.youtube.com/cumminsinc).

Complementing to evolving technologies and changing customer needs, a critical determinant of Cummins' success over the long term is our ability to create an organization that is focused on delivering on our commitments to the full range of stakeholders we serve. The values that define Cummins are designed to endure and have never been more important to us than in today's economic climate. Our Sustainability Report this year celebrates our six core values: Integrity, Innovation, Delivering Superior Results, Corporate Responsibility, Diversity and Global Involvement. Our leaders have embraced these values to guide the Company in good times and bad. Just since their adoption in the year 2000, they have helped Cummins successfully navigate multiple recessions, tremendous technological changes in our industry and the advent of fierce global competition. Cummins' values provide us with a foundation that enables our Company to look at challenging times not as a moment to stand still, but rather as an opportunity to position ourselves for a bright future, relying on our values to guide us more than ever.

Our Company has long worked under the premise that our strength is dependent on the health of the communities in which we operate and where our products are sold. From that perspective, the notion of sustainability is not a luxury, but rather a critical component to our long-term success.

For reporting purposes to CDP, Cummins uses the following definition for its reporting boundary: all consolidated operations and joint ventures subscribing to Cummins Environment Management system.

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**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

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**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
Australia
Brazil
China
India
Mexico
South Africa
United Kingdom
Rest of world

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**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(\$)

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**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](mailto: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.

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**Further Information****Attachments**

[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC0.Introduction/2017\\_SR\\_Brochure\\_Final\\_Web\\_Pages\\_0515.pdf](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC0.Introduction/2017_SR_Brochure_Final_Web_Pages_0515.pdf)

**Module: Management**

**Page: CC1. Governance**

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**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**

The Safety, Environment and Technology Committee of the Cummins Board of Directors. This committee met four times in 2016. The Committee advises senior leaders and the technical leadership of Cummins regarding: Environmental and technological strategies including climate change, compliance programs and major projects as they relate to the Company and its products; public policy developments, strategies and positions taken by the Company with respect to safety, environmental and technological matters that significantly impact the Company or its products; progress of strategic environmental programs and policies.

**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
Executive officer	Recognition (non-monetary)	Emissions reduction target Energy reduction target Efficiency target	Recognition for meeting goals and targets or competitions comes in the form of business unit recognition, recognition by the Board of Directors as well as the CEO.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Corporate executive team	Recognition (non-monetary)	Emissions reduction target Energy reduction target Efficiency target	Recognition for meeting goals and targets or competitions comes in the form of business unit recognition, recognition by the Board of Directors as well as the CEO.
Business unit managers	Monetary reward	Emissions reduction target Energy reduction target Efficiency target	A key measure in Cummins' Global Environmental Sustainability Plan is a commitment to transparency and accountability. Environmental goals are now incorporated into the Quarterly Scorecard for the Cummins Leadership Team's review. The scorecard shows progress toward the facilities and operations waste, water, energy, and greenhouse gas goals, products in use goal, and logistics goal. In each of these areas, the scorecard will show progress on the both enterprise-wide goals as well as the progress toward the goal apportioned by each business unit and some area business organizations (regional or country focused.) Progress toward goal achievement is part of an employee's work plan for the year and can result in monetary award through merit increases and meeting the company's ROANA target, which results in a profit sharing bonus for all employees.
Energy managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target	A key measure in Cummins' Global Environmental Sustainability Plan is a commitment to transparency and accountability. Environmental goals are now incorporated into the Quarterly Scorecard for the Cummins Leadership Team's review. The scorecard shows progress toward the facilities and operations waste, water, energy, and greenhouse gas goals, products in use goal, and logistics goal. In each of these areas, the scorecard will show progress on the both enterprise-wide goals as well as the progress toward the goal apportioned by each business unit and some area business organizations (regional or country focused.) Progress toward goal achievement is part of an employee's work plan for the year and can result in monetary award through merit increases and meeting the company's ROANA target, which results in a profit sharing bonus for all employees.
Environment/Sustainability managers	Monetary reward	Other: Behaviour change related indicator	Environment and sustainability managers have meeting sustainability goals based on changed behavior as part of their individual work plans. Achieving these work plans as part of the annual performance evaluation process determines what level of merit increase these employees receive. This increase can vary between 1-5 percent of base pay. Variable compensation for most employees is tied to return on average net assets targets, and the company's profitability based on sales and customer satisfaction, a function of how well products perform (including fuel efficiency and in use emissions) in part of that calculation.
Facility managers	Monetary	Emissions	A key measure in Cummins' Global Environmental Sustainability Plan is a commitment to

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
	reward	reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target Other: Behaviour change related indicator	transparency and accountability. Environmental goals are now incorporated into the Quarterly Scorecard for the Cummins Leadership Team's review. The scorecard shows progress toward the facilities and operations waste, water, energy, and greenhouse gas goals, products in use goal, and logistics goal. In each of these areas, the scorecard will show progress on the both enterprise-wide goals as well as the progress toward the goal apportioned by each business unit and some area business organizations (regional or country focused.) Progress toward goal achievement is part of an employee's work plan for the year and can result in monetary award through merit increases and meeting the company's ROANA target, which results in a profit sharing bonus for all employees.
Process operation managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target Other: Behaviour change related indicator	A key measure in Cummins' Global Environmental Sustainability Plan is a commitment to transparency and accountability. Environmental goals are now incorporated into the Quarterly Scorecard for the Cummins Leadership Team's review. The scorecard shows progress toward the facilities and operations waste, water, energy, and greenhouse gas goals, products in use goal, and logistics goal. In each of these areas, the scorecard will show progress on the both enterprise-wide goals as well as the progress toward the goal apportioned by each business unit and some area business organizations (regional or country focused.) Progress toward goal achievement is part of an employee's work plan for the year and can result in monetary award through merit increases and meeting the company's ROANA target, which results in a profit sharing bonus for all employees.
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Other: Behaviour change related indicator	The top 18 winners from the Cummins Environmental Challenge, a community focused project based challenge, receive \$10,000 to donate to the community group of their choice. The projects are also featured prominently on the Company's intranet site as well as in the annual sustainability report.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Environment/Sustainability managers	Recognition (non-monetary)	Emissions reduction project Energy reduction project Efficiency project Other: Behaviour change related indicator	The top winners of the Cummins Global Impact and Chairman's Impact awards, part of an overall Cummins award framework, are recognized throughout the company; the top projects are featured celebrated throughout the company and the leader of the project chosen as the Chairman's Impact award attends a ceremony attended by senior executive management.
All employees	Recognition (non-monetary)	Other: Behaviour change related indicator	Cummins holds an annual June Environmental Month, a celebration of the Company's environmental sustainability plan and its water, waste and energy goals. Employees may share their activities and be recognized on the intranet community site as well as have their projects and photos shared in internal and external communication forums.
Chief Executive Officer (CEO)	Recognition (non-monetary)	Emissions reduction target Energy reduction target Other: Behaviour change related indicator	The CEO often accepts the external recognition that Cummins receives. For example, the CEO was engaged when in 2014 Cummins received the international Robert W. Campbell Award that recognize organizations that achieve excellence through the integration of environmental, health and safety management into business operations.

#### 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

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**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
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	All areas in which Cummins has operations	> 6 years	Climate change actions are presented to both the full Board of Directors as well as committees to the Board.

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**CC2.1b**

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

At a company level, the Enterprise Risk Management (ERM) group, which reports to the Vice President of Corporate Strategy, maintains a risk map to identify all potential risks (and to an extent, potential opportunities) the company faces, including strategic, operational, compliance and financial risks. Our risk assessment process, in alignment with the COSO (Committee of Sponsoring Organizations of the Treadway Commission) framework, is focused on identifying and prioritizing risk events within the four categories of financial, operational, strategic and compliance. We have developed standard risk taxonomy and risk assessment criteria and in 2014-2015, we conducted an extensive stakeholder interview process to capture voices across the organization on the potential risk events. This process, which incorporates extensive stakeholder interviews, is designed to be conducted once every two to three years. In 2016, Cummins established an Enterprise Risk Council made up of the company's top leaders who will manage oversight of risk and provide direction on risk-related matters.

The new council is part of a framework designed to drive a culture of continuous improvement in risk management at Cummins, where risk is recognized and responded to appropriately. As part of the transformation, each company leader has taken ownership of an individual risk that could impact profit and loss.

As the asset level, the function continued to help sites within Cummins develop Business Continuity Plans, outlining how they would operate when facing an emergency. More than 600 locations now have plans and many conducted table-top exercises to test their effectiveness. The Enterprise Risk Management team also helped oversee more involved stress tests administered by a third party at the company's 74 sites deemed most critical to Cummins' operations.

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**CC2.1c**

**How do you prioritize the risks and opportunities identified?**

These identified risk events identified using the process in the previous question are then assessed and prioritized based on defined risk assessment criteria – Business impact, likelihood of occurrence and CMI's risk management capability. As a result of this assessment, Cummins now has a list of twenty Tier-1 risks that have high business impact and medium-high likelihood of occurrence. Further, we have a risk repository of 74 low impact / low likelihood Tier-2 risks.

Cummins' top risks are presented at each meeting of the Board of Directors; periodically a deep dive into specific risks is presented to the Board. In addition, once a year a state of Enterprise Risk Management update is provided to the Board of Directors. The Board is engaged in the oversight of risk in many areas, including oversight of the enterprise risk management programs and oversight of critical enterprise risks. Although the overall governance of the ERM program is monitored by the audit committee, details of the potential impact and mitigation activities for individual risks are reviewed in various sub-committees.

The Action Committee for Environmental Sustainability (ACES) also assesses risk related to climate change. This group takes a very structured and results-oriented approach to our 10 environmental sustainability principles developed to meet the challenges of climate change (in addition to water and waste management) going forward - and part of the approach includes discussion and analysis about climate change risk and opportunities at its monthly meetings as well as annual update to the Chairman and CEO.

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**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
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**CC2.2**

**Is climate change integrated into your business strategy?**

Yes

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**CC2.2a**

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

i) The Action Committee for Environmental Sustainability (ACES), formed in 2012, integrates climate change actions into overall business strategy. The group is the voice and catalyst for environmental action beyond compliance in the company and provides tools, resources and for employees go further and faster in reaching environmental goals. The corporate ACES team has a global focus, involves all businesses and all functions and its structure of stakeholder areas is replicated all or in part in each of the four Company business units. The individual stakeholder and goal owner areas of ACES ensure that all aspects of the environment and relevant areas of the business are included and data is collected and reported that inform decision making and goal setting. A major outcome of the working group is that in June 2014, Cummins announced that after several years of study and analysis, it had adopted a comprehensive environmental sustainability plan and since announced 7 public goals.

ii) Envolve Cummins is the comprehensive lens through which Cummins views environmental sustainability, from design to manufacture to end of life. Our environmental sustainability plan is the way we carry out our priorities and goals and initiatives in our action areas. Envolve Cummins' priorities for sustainable consumption and production focus on three key action areas: reducing the company's carbon footprint; using fewer natural resources; and partnering to solve complex problems.

iii) Our most substantial decision made in the 2016 was to form a Cummins team for material efficiency now to make the company's products more eco-efficient in the future. Many of the concepts of the "circular economy" and its emphasis on re-use and recycling are not new, but this team is connecting with the various functions in charge of materials work at Cummins to elevate their importance. The goal is to use the right amount of material in everything the company makes to avoid unnecessary use of water and energy throughout a product's lifecycle. That means using material optimization tools to ensure structural integrity with minimized material and specifying that raw material is finished as close as possible to the ending net shape of the component. Packaging leaders at Cummins are working to better understand what metrics and actions will drive consistent and environmentally sound packaging decisions. Their goals for sustainable packaging solutions are to reduce packaging waste and increase reusable solutions as well as the use of recyclable material.

iv) In the short term, we have established strategies around the first two action areas. We have goals 5 goals related to our facilities with a 2020 goal year: energy intensity reduction, direct water use reduction and water neutrality at 15 sites, increasing the recycling rate and zero disposal at 30 sites. Two other goals are related to reducing fuel burned, thus reducing CO2 emissions, from our products in use and a logistics goal for reducing CO2 per kilogram of goods shipped within the Cummins network.

v) Outcomes from progress made on our facilities goals from baseline year are emissions equal to taking 68, 400 cars off the road for a year; water for drinking, sanitation and hygiene for 352,300 people for a year, and waste to fill 4,200 garbage trucks. For our products in use goal, we expect to work with 20 percent of its customers, cumulatively saving them 1.6 billion gallons of fuel, \$6 billion and more than 15 million metric tonnes of CO2 by 2020. This equates to taking 3.2 million passenger vehicles off the road. Our logistics goal will save the company \$40-64 million per year.

vi) Part of our long-term strategy is to develop a comprehensive way to set and measure fuel efficiency goals. Engineering teams have long included fuel efficiency targets as part of their product development process. Today, Cummins is conducting a great amount of research into what it would take to expand its approach to design efficient products that are needed far into the future – to 2030 and beyond. The company is moving beyond just meeting regulations as its main guidepost and driving force to focusing on continuing to exceed customer's expectations while reducing the environmental impact of its products.

vii) Cummins is committed to certifying our environmental management system to the ISO 14001-2015 standard. The existing structure of the Action Committee for Environmental Sustainability and processes in place for Cummins to meet our environmental goals were created with the goal of integrating sustainability

throughout the business and ensuring that the environment is a factor for business decisions. Utilizing the ISO 14001-2015 standard as guidance, we are formalizing these processes and policies in the following areas:

Leadership and commitment; planning, including actions to address risks and opportunities and planning to achieve environmental objectives; support, including resources, communication and documentation; operations; performance evaluation; and improvement.

viii) The company's environmental actions give us a strategic advantage in several ways. Countless market research studies tell us that fuel efficiency is one of the most significant factors when a customer makes a purchase decision. Through our global Competitive Loyalty Study, we know that customers who are identified as company "promoters" spend on average 25 percent more of their budget with Cummins than those not as satisfied do because of attributes such as after-sale service, product quality and performance. Cummins concludes that delivering on fuel efficiency will drive customer loyalty and uphold the brand promise of dependability. Environmental action and brand recognition contributes to meaningful work, a key employee engagement metric as well as to talent attraction and retention.

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#### CC2.2b

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

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#### CC2.2c

Does your company use an internal price on carbon?

Yes

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#### CC2.2d

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

An internal price of carbon is used when evaluating funding of energy efficiency projects. The price used is market-based, generally the price of carbon on a current public market exchange. Cummins is still at the stage of its energy efficiency projects where the price of carbon is usually not a determining factor in whether a project is funded. There are instances, however, when a project may not have a high return on investment or meet other financial hurdles but does avoid a significant amount of GHGs, so project may then get funded in that way.

**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
- Funding research organizations
- 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
Clean energy generation	Support	Cummins is building coalitions among various stakeholders, working with customers on solutions using clean burning energy and waste to energy and renewable energy and educating policymakers.	Cummins government relations department represents Cummins solutions of combined heat and power as well as waste to energy solutions.
Energy efficiency	Support	Cummins is a member of Department of Energy Better Buildings, Better Plants Program and is active in various industrial energy efficiency groups, both sector specific and general at national and regional levels.	We promote and model industrial energy efficiency practices and are active with several government programs for energy efficiency.
Other: Product efficiency	Support	Cummins is building coalitions among various stakeholders globally, working with customers, government and other stakeholders as well as educating policymakers globally.	Cummins' government relations efforts in the United States include working with Congress, the White House, state governments, trade associations and industry to support the Environmental Protection Agency (EPA) in developing greenhouse gas regulations in the U.S. for heavy- duty vehicles, and to broadly educate policy makers about how regulations, economic development and competitiveness can co-exist if developed properly. Government relations also advocates for power generation systems using renewable energy.
Energy efficiency	Support	Cummins pledged support for a new Energy Management Campaign. This campaign is an effort of CEM and the International Partnership for Energy Efficiency Cooperation to spur international collaboration with a goal of 50,001 global	This campaign is an effort of CEM and the International Partnership for Energy Efficiency Cooperation to spur international collaboration with a goal of 50,001 global certifications by 2020.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		certifications by 2020. Cummins will achieve ISO 50001 certification at a total of 40 sites by 2020. These 40 sites represent 90 percent of Cummins' energy footprint.	

### 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?
China Internal Combustion Engine Industry Association	Mixed	Without comprehensive national climate change legislation, the Company cannot determine the association's position at this time. The association supports national efforts to reduce fuel consumption.	Cummins has worked within CICEIA on fuel consumption activities, NS VI emission standard readiness and how to ensure industry-wide compliance in China.
Confederation of Indian Industry	Consistent	The trade association supports international cooperation on climate change with nationally-determined pledges. Without comprehensive national climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively within the Confederation of Indian Industry (CII) to build consensus about the business value of addressing climate change and to advocate for stricter emissions standards. The Company's Vice President and Chairman of Cummins India Limited chairs CII's Manufacturing Committee and the Vice President of Indian Government Relations serves on CII's National Committee on the Environment, both of which influence the association's position. CII advocates for the industry's viewpoint on climate change to the Indian Foreign Ministry and Ministry of

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?
			Environment, Forest and Climate Change through direct lobbying opportunities such as the COP21 negotiations in Paris in 2015.
The Diesel Technology Forum	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively in the DTF to encourage it to be supportive of fuel economy in vehicles and of energy efficiency programs in our sector
The Engine Manufacturers Association	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively in the EMA to encourage it to be supportive of engine efficiency and of energy efficiency programs in our sector
The National Association of Manufacturers	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively in NAM to encourage it to be supportive of fuel economy in vehicles and of industrial energy efficiency programs in our sector. The company is encouraging the organization to work more collaboratively with the EPA. Cummins' chief operating officer is on the board of directors.
U.S. Chamber of Commerce	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively with the US Chamber to encourage them to be supportive of fuel economy in vehicles and of energy efficiency programs in our sector.
The American Trucking Association	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins works actively in the ATA to encourage it to be supportive of fuel economy in vehicles and of energy efficiency programs in our sector
The Business Roundtable	Mixed	Without comprehensive climate change legislation, the Company cannot determine this group's position at this time.	Cummins has been a regular contributor to Roundtable's annual sustainability report, including the 2017 report "Create.Grow.Sustain." Cummins' CEO chairs the International Engagement Committee and serves on the Executive Committee.

**CC2.3d**

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

No

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**CC2.3e****Please provide details of the other engagement activities that you undertake**

- i) The third key consideration of Envolve Cummins is partnering to solve complex problems. For example, Cummins certified early to meet U.S. Phase 1 fuel efficiency standards in 2013 and 2016 and was part of a stakeholder group participating in a multi-year effort to advocate for the rule.
- ii) In August 2016, Cummins expressed its readiness to provide fuel savings and environmental benefits as the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) finalized the second phase of their national fuel efficiency and greenhouse gas (GHG) emission regulations for medium- and heavy-duty commercial vehicles. These regulations cover Cummins on-highway engines from 200 to more than 600 horsepower output. The agencies released a final rule that sets new standards for engines, on-highway tractors, vocational vehicles, trailers and heavy-duty pickup trucks and vans. The Phase 2 standards, intended to drive further reductions in fuel consumption and greenhouse gas emissions, are an important step toward achieving national climate and energy goals and delivering cost-saving benefits to owners. The Phase 2 rule builds on the Phase 1 regulatory framework that recognizes the diversity and complexity of the commercial vehicle sector.
- iii) Cummins Chairman and CEO signed a letter of support for the US to remain in the Paris Climate Agreement that appeared nationally in the Wall Street Journal
- iv) Cummins worked to extend tax credit for clean energy investment
- v) Cummins participates in the Global Commercial Vehicle industry forum, a group comprised of European, North American and Japanese manufacturers of heavy-duty vehicles and engines. Cummins is also becoming more involved in GHG and fuel efficiency regulatory development in Europe, China and other regions of the world. In fact, Cummins has dedicated resources to focus specifically on the policies involving GHG and fuel efficiency regulations to help us better coordinate the Company's global activities in developing responsible regulations that promote technologies for more efficient products with lower GHG. Cummins also hosts governmental delegations as well as non-governmental organizations at its headquarters in Indiana to learn more about GHG and fuel efficiency standards.
- vi) Cummins engages on other issues as well. Our government relations staff continue to advocate globally for products and technologies that benefit the environment. These include fuel efficient generators for military applications, combined heat and power systems and distributed generation and natural gas engines. Cummins is active in efforts to remove barriers to remanufacturing and remanufactured goods globally. In the U.S., the Company is leading a coalition whose aim is to secure continued funding for the Diesel Emissions Reduction Act (DERA) to either rebuild or replace diesel-powered vehicle engines to meet more stringent emission standards or install emission reduction systems.
- vii) Cummins continues to build upon its longstanding partnerships with the U.S. Department of Energy (DOE) and other federal and state agencies to develop advances in product energy efficiency. The company's recent portfolio of government co-funded technology development and system integration programs stands at \$351.2 million in total public / private research investment since 2010.
- vii) Cummins in June 2016 pledged as part of the Clean Energy Ministerial's Energy Management Campaign to achieve ISO 50001 certification at a total of 40 sites by 2020 that represent 90 percent of our energy footprint. This campaign is an effort of CEM and the International Partnership for Energy Efficiency Cooperation to spur international collaboration with a goal of 50,001 global certifications by 2020.
- ix) Cummins employees are also very actively engaged at home, at work and in the community. 2016 was the Environmental Challenge's eighth year, engaging 17,400 employees from 23 countries. Eighty-seven projects were completed in 2016, with many building upon the success of previous years. 17,000 metric tons of materials was collected or recycled, 14 million kiloliters of water were conserved or made fit for use, and 12,000 metric tons of GHG were reduced. 2017 marked the

fourth annual June Environmental Month, a company-wide celebration of environmental stewardship; in 2016 more than 35, 000 employees took part in activities, environmental "find it fix it" or educational opportunities. Cummins employees engage in their local communities by serving on boards, completing environmental projects that are part of the Community Involvement Team work and engaging in educational opportunities through projects and presentations at schools and other community partners.

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### 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?**

The Company has several groups and processes in place to ensure that our advocacy is consistent with our environmental and climate strategies. A Cummins team called Environmental Policy & Strategic Planning exists to analyze major environmental strategic opportunities and risks that affect the company globally; direct work with internal and external stakeholders to shape stances and positions on environmental affairs that impacts Cummins; and coordinate efforts across complex environmental issues to ensure consistency and adherence to our environmental and climate strategies across all activities including public policy advocacy. This team uses robust processes and guiding principles to direct Cummins' environmental policy actions. Whether the policy we are influencing is a regulation that focuses on reducing criteria pollutants, greenhouse gas emissions (GHG) or improving fuel efficiency, Cummins' policy principles ensure that we always advocate for tough, clear, and enforceable policy. These principles and our environmental mission apply to all direct and indirect activities including external relations, partnerships, and advocacy.

In addition to our environmental policy principles and processes, the Action Committee for Environmental Sustainability (ACES) shapes the activities and goal-setting of the stakeholder areas for product in use and in design, facilities and operations, internal supply chain (logistics and packaging), employee engagement and communications and marketing. Through processes such as monthly meetings, goal tracking, and disclosure, ACES ensures that the 10 environmental sustainability principles listed below are used to develop and adhere to Cummins' climate strategy, whether internal Company actions or external engagement.

The Company has 10 environmental sustainability principles - with the last four focusing on policy:

- Develop clean, efficient products
- Grow and develop new businesses
- Develop environmentally sustainable supply chains
- Make work spaces green spaces.
- Harness the energy of employees
- Engage in the community
- Help develop responsible regulations.
- Promote technology development.
- Advocate for incentives to accelerate progress
- Support a balanced global approach.

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### CC2.3g

Please explain why you do not engage with policy makers

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## Further Information

### Attachments

[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC2.Strategy/2016\\_cummins\\_sustainability\\_report\\_partnerships.pdf](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC2.Strategy/2016_cummins_sustainability_report_partnerships.pdf)  
[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC2.Strategy/ParisCEOTrumpLetter5.10.17.pdf](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC2.Strategy/ParisCEOTrumpLetter5.10.17.pdf)

## Page: CC3. Targets and Initiatives

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### 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?**

Absolute target  
Intensity target

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### 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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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
Abs1	Scope 3: Use of sold products	100%	1.6%	2014	914000000	2020	No, but we anticipate setting one in the next 2 years	Cummins fuel economy teams throughout the world have implemented more than 200 projects since this goal was announced in 2014. The result is that Cummins has already achieved a 2.9 million metric ton annual run rate of CO2 reduction toward the company's goal of a 3.5 million metric ton run rate per year. This equates to a goal of 15 million metric tons from baseline year or 1.6 percent. In 2016, the estimated use of sold products emissions amounted to 800,000,000 metric tons CO2e.

### 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 (market-based)	95.5%	32%	Metric tonnes CO2e per unit hour worked	2010	0.00679	2020	No, but we anticipate setting one in the next 2 years	Cummins in 2016 approved its third energy goal in 10 years after exceeding its second energy and greenhouse gas (GHG) reduction goal in 2015. The current goal's intensity factor is based on hours worked, not revenue as previously used. All consolidated operations and joint ventures subscribing to Cummins' Enterprise Environmental Management System are included. However, emissions associated with generation of sold electricity (as part of the power solutions business)

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
									and mobile sources (emissions associated with onroad vehicles) are not included in the goals. Additionally, it is assumed that 2010 market based emissions to be the same as location based emissions.

**CC3.1c**

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	2.7	Decrease	1.6	The absolute emissions for Scope 1 and 2 are projected to decrease by 2.7 percent assuming the total hours worked is will stay flat as in 2016. The assumption is based on the fact that the DBU North America acquisition is completed and increased operational efficiencies. For Scope 3, the absolute reductions amount to 1.6 percent as the goals are already in absolute terms.

**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
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**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
Abs1	33%	82%	Cummins use of sold products target is to achieve fuel use reductions equivalent to 3.5 million metric tons. In 2016, Cummins total fuel efficiency improvement projects amounted to 2.9 million metric tons
Int1	60%	92.2%	Since 2010 baseline year, company has reduced 24.8 percent scope 1 emissions intensity and 31.3 percent scope 2 market based emissions intensity. This averages to 29.5 percent overall intensity reduction. Cummins had a number of changes in the past year including several new buildings and distributor locations included in scope as part of the Distribution Business' North American consolidation that resulted in increased emissions. The company continues to use a facility investment plan approach, with a focus on engine test efficiency to minimize fuel burned and investments in on-site renewable projects to offset electricity purchased from the grid.

**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	1) Cummins introduced more than two-dozen new products or product updates in 2016, a natural outgrowth of the company's emphasis on innovation. Many involved helping customers meet their own environmental goals, either through reducing emissions or achieving greater fuel efficiency. For the engine business, products classified as low carbon products or that enable a third party to avoid GHG emissions are our wide range of new fuel efficient engines, natural gas engines and engines that run on renewable fuels.	Low carbon product and avoided emissions	Other: Company's own fuel consumption modeling and testing	40%	More than 40% but less than or equal to 60%	
Group of	For the power generation business, natural gas generator	Low carbon	Other: Company's	5%	Less than or	

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
products	sets, distributed generation, combined heat and power, micro-grids.	product and avoided emissions	own fuel consumption modeling and testing		equal to 10%	
Group of products	For the turbocharger and emissions solutions businesses, Single Module aftertreatment system for midrange off-highway engines offer up to a 30 percent reduction in weight and up to a 50 percent reduction in size. In 2016, Cummins Turbo Technologies introduced its HE250WG turbocharger for off-highway engines, designed to improve fuel economy by up to 2 percent	Avoided emissions	Other: Company's own fuel consumption modeling and testing	5%	Less than or equal to 10%	

**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	0	0
To be implemented*	0	0
Implementation commenced*	0	0
Implemented*	175	19327
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	Energy theme: machinery and equipment 39 projects	6508		Voluntary	1043000	3239000	4-10 years	6-10 years	
Energy efficiency: Building services	Energy theme: lighting 53 projects	6126		Voluntary	2841000	8930000	1-3 years	3-5 years	
Energy efficiency: Building services	Energy theme: heating and cooling 31 projects	2223		Voluntary	440000	2013000	4-10 years	11-15 years	
Energy efficiency: Building services	Energy theme: power management 14 projects	1415		Voluntary	208000	994000	4-10 years	6-10 years	
Waste recovery	Energy theme: energy recovery 3 projects	866		Voluntary	148000	265000	4-10 years	6-10 years	

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
Other	15 projects	804		Voluntary	113000	376000	4-10 years	6-10 years	
Energy efficiency: Building fabric	Energy theme: building envelope 6 projects	572		Voluntary	66000	224000	4-10 years	6-10 years	
Energy efficiency: Processes	Energy theme: power management 5 projects	477		Voluntary	76000	320000	4-10 years	6-10 years	
Low carbon energy installation	Energy theme: renewable energy 4 projects	239		Voluntary	27000	139000	1-3 years	3-5 years	
Process emissions reductions	Energy theme: water related energy reductions 5 projects	97		Voluntary	10000	895000	1-3 years	3-5 years	

### CC3.3c

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

Method	Comment
Compliance with regulatory requirements/standards	In the UK, meeting the requirements of the Carbon Reduction Commitment Energy Efficiency Scheme (CRC)
Dedicated budget for energy efficiency	Since 2007, Cummins has implemented an energy efficiency capital fund to finance energy-related projects. Cummins has a comprehensive investment plan designed to achieve the Company's 2015 energy and GHG intensity goals, as well as the new 2020 energy and GHG intensity goals. In 2016, Cummins used this fund to complete 175 capital projects, with a total investment of \$19.8 million and annual cost savings of \$5 million.
Dedicated budget for other emissions reduction activities	A central budget is provided to fund corporate energy and GHG initiatives, including the Cummins Environmental Champion program (updated Energy Champion program integrating Water and Waste) and implementing ISO 50001 across the

Method	Comment
	Cummins Enterprise. Cummins 2020 goal is to certify 40 sites and by end of 2016 has 18 sites globally certified to ISO 50001.
Employee engagement	In 2016, Cummins transitioned its successful Energy Champions into an Environmental Champions program incorporating water and waste into the energy curriculum. Environmental Champions take 32 hours of training over five days. In 2016, five sessions with a total of 166 attendees representing a good portion of the company's footprint attended. The goal is to train Champions at the 50 priority sites for the Company that comprise 90 percent of Cummins environmental footprint.
Financial optimization calculations	Cummins uses a model of the internal rate of return to establish a baseline IRR for funded energy efficiency projects.
Internal price on carbon	Cummins uses the cost of carbon as part of the financial decision making process in energy efficiency capital funding of projects.
Partnering with governments on technology development	The company's recent portfolio of government co-funded technology development and system integration programs stands at \$351.2 million in total public / private research investment since 2010. A table of the most recent partnerships is found in the attachment to this question.
Dedicated budget for low carbon product R&D	Our research and technology budget, a subset of our publically released research and development spending, in any given year is up to 10% of R&D spending. It is estimated that 85% of this budget is dedicated to low carbon product development and other emissions reductions activities.
Dedicated budget for other emissions reduction activities	Our research and technology budget, a subset of our publically released research and development spending, in any given year is up to 10% of R&D spending. It is estimated that 85% of this budget is dedicated to low carbon product development and other emissions reductions activities.
Internal incentives/recognition programs	Cummins has conducted company-wide environmental awards since 2005, called the Chairman's Environmental Awards program. Each year, sites are encouraged to submit applications for the awards, using a common template and judged by a panel of Cummins energy and environmental leaders. Award winners are honored through company communications, and by attending a recognition dinner with senior leaders and the Cummins Board of Directors
Internal finance mechanisms	In addition to the dedicated capital fund, energy and GHG reduction projects are also implemented through normal channels. Sites implement energy efficiency projects and select energy efficient options for projects by using the same financial tools and investment criteria as are used for the dedicated capital fund.

### CC3.3d

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

### Further Information

On July 5, 2017, Cummins signed a Science Based Target Commitment letter. Please see the attached below.

#### Attachments

[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/2016 Energy Project Examples.pptx](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/2016%20Energy%20Project%20Examples.pptx)  
[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/SBT-Commitment-Letter Cummins.pdf](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/SBT-Commitment-Letter%20Cummins.pdf)  
[https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/2016\\_cummins\\_sustainability\\_report\\_partnerships.pdf](https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC3.TargetsandInitiatives/2016_cummins_sustainability_report_partnerships.pdf)

#### 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	Environmental section is 14-31	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/2016_cummins_sustainability_report_full_june_2017.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/2016_cummins_sustainability_report_full_june_2017.pdf</a>	Cummins sustainability report for 2016. We have been publishing our own report since 2003.
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	Environmental standards are pages 24-36	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/2016_cummins_sustainability_data_book_june_2017.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/2016_cummins_sustainability_data_book_june_2017.pdf</a>	Cummins has produced an environmental addendum to its sustainability report since 2011. 2016 is the

Publication	Status	Page/Section reference	Attach the document	Comment
				second year Cummins has produced a GRI report compliant to core standards.
In other regulatory filings	Complete	pages 12-13	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/2016%20Annual%20Report%20on%2010-K%20Form.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/2016 Annual Report on 10-K Form.pdf</a>	We feel our response to climate change is important and warrants inclusion in this important document for investors.
In voluntary communications	Complete	1	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/Cummins.Sustainability2017.FINAL.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/Cummins.Sustainability2017.FINAL.pdf</a>	Cummins has participated in the Business Roundtable's annual sustainability report since it began in 2007.
In voluntary communications	Complete	1	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/ParisCEOTrumpLetter5.10.17.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/ParisCEOTrumpLetter5.10.17.pdf</a>	Cummins CEO Tom Linebarger was one of 30 CEOs who urged US President Donald Trump to remain in the Paris Climate Agreement. This letter ran as a one page advertisement in the Wall Street Journal.
In voluntary communications	Complete	1-2	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/GloballyEnvolved_Issue_2_draft2.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/GloballyEnvolved_Issue_2_draft2.pdf</a>	Cummins has published a

Publication	Status	Page/Section reference	Attach the document	Comment
				newsletter about our response to climate change since 2011. The newsletter's primary audience is internal, but it is often distributed externally as well.
In voluntary communications	Complete	all	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC4.1/Cummins_EWA_Case_Study_5-12-17_0.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC4.1/Cummins_EWA_Case_Study_5-12-17_0.pdf</a>	Case study on Cummins participation in the Superior Energy Performance program that is now on the US Department of Energy. web site.

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#### Further Information

### Module: Risks and Opportunities

#### Page: CC5. Climate Change Risks

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##### 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
Fuel/energy taxes and regulations	Carbon Reduction Commitment (CRC) energy efficiency legislation enacted in the UK on April 1, 2010 could pose a risk for Cummins if we fall in the performance table.	Increased operational cost	Up to 1 year	Direct	Virtually certain	Low	Cummins entities in the UK are within the scope of the Carbon Reduction Commitment (CRC) regulations developed to drive greenhouse gas reductions in the public and private sectors. Cummins' payment to the UK Environmental Agency in 2016 was approximately \$750,000 million USD. Cummins understands there are negative financial implications if the Company's GHG performance	Cummins has a robust energy efficiency program that includes market innovations such as a central energy efficiency capital fund and an Energy Champions program. Examples of projects completed at Cummins' sites in the UK have included LED lighting upgrades, compressed air heat recovery, building management system upgrades, boiler replacements, sub-meter installation, solar PV installation, and	Any additional cost would be part of our existing process in funding and implementing energy efficiency projects. In 2016 capital spent for energy efficiency projects in the UK was approximately \$500,000.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							worsened.	installation of building management system occupancy zone valves/controls.	
Emission reporting obligations	A potential risk is some form of U.S. federal legislation or regulation may be forthcoming with respect to regulating manufacturers' greenhouse gas emissions	Other: additional employees needed	3 to 6 years	Direct	About as likely as not	Low	The cost of the environmental data collection and tracking system including the human resources to support it is less than \$500,000 per year.	In 2010, Cummins implemented an environmental data collection and tracking system that made the gathering and public reporting of performance data for Cummins locations easier and more accurate.	The yearly cost of service with service provider plus human resources for support. If there is regulation, possible additional headcount.
Product efficiency regulations and standards	The finalization of greenhouse gas and fuel efficiency standards for medium-and heavy-duty vehicles in the US could pose a risk for Cummins.	Other: regulatory risk of non compliance and increased product development cost	1 to 3 years	Direct	Virtually certain	Low-medium	There are costs associated with certifying our engines to a new regulatory regime for CO2 and fuel efficiency.	We have worked with the regulators to ensure that this new regulatory regime aligns directly with our existing testing, certification and compliance for our current engines as certified to existing criteria emissions standards (particulate matter and oxides of nitrogen). Additionally, we	The incremental spending is expected to be low given our ongoing work on technology development and alignment with the existing regulatory structure.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								have developed and are already implementing technology roadmaps to meet the new GHG and fuel efficiency standards	
Carbon taxes	Carbon taxes mean additional costs for energy used in Cummins' facilities or higher cost for Company managed freight.	Increased operational cost	>6 years	Direct	Unlikely	Low-medium	The implications are higher operating costs for the company.	We already have a comprehensive structure in place to measure, report and reduce greenhouse gas emissions and energy use at our facilities through the existing energy efficiency team and Energy Champions program.	Any additional costs would likely be part of our existing process in funding and implementing energy efficiency projects
Product labeling regulations and standards	An opinion of various stakeholders in the heavy-duty truck manufacturing industry is that labels should capture overall vehicle performance. This believe introduces complexities and	Other: does not reflect actual performance	>6 years	Direct	About as likely as not	Low-medium	It would depend on the regulatory structure that generates the information for the label	We are active in educating stakeholders on the merits of a regulatory structure that recognizes engine and vehicle performance separately	No additional costs are identified.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	concerns for an independent engine manufacturer that doesn't make vehicles such as Cummins.								
Uncertainty surrounding new regulation	If regulation is passed that is not clear, tough, fair or enforceable, that could pose a risk for Cummins.	Inability to do business	>6 years	Direct	About as likely as not	Medium	If regulations are not clear or do not provide sufficient lead-time, then we may not have products ready to sell in a market. Additionally, if regulations are not enforced, then Cummins will invest to develop compliant product while others in a country may not and thus put our products at a competitive disadvantage.	We are active in educating stakeholders on the merits of a regulatory structure that recognizes engine and vehicle performance separately	No additional costs are identified.

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 pattern	Potential for inadequate or unreliable water supplies in the long-term horizons, which could lead to operational disruptions, increased water pricing, investment in contingency plans, and increased capital expenditures to manage growth within water use allocation limits. The regions we have identified are China ( Hai Ho river basin); India (Krishna river basin); Mexico (Panuco river basin) and Brazil (Paraiba Do Sul river basin).	Reduction/disruption in production capacity	>6 years	Direct	Likely	Medium	Cummins conducted detailed watershed assessments to facilities identified as at risk. Overall, 45 percent of Cummins operations are in water stressed areas. Financial implications would be periods of plant inactivity or closure, loss of production and possible customer deadline ramifications.	Management method varies by site, but can include continued water conservation measures in existing operations, increase in water storage capacity, and deployment of low/no water use processes such as air cooled chiller systems where warranted based upon facility water dependency. These systems increased capital expenditure and increased operating costs related to higher energy use, but off-set the potential risks associated with interruption of operations. However, Cummins is also using technologies	Water and energy efforts are often integrated at Cummins. We have spent \$1.2 million at sites in water stressed areas for regenerative dynos to manage the costs associated with the energy impact of water conservation measures.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								such as regenerative dynos to manage the costs associated with the energy impact. Also, Cummins has developed goals that include community alignment .	

CC5.1c

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	Consumers may prefer products that compete with what Cummins produces and that could be a risk to our business.	Reduced demand for goods/services	Unknown	Direct	About as likely as not	Medium	The financial implications are hard to quantify as changes in consumer preferences often take time. However, the risk is that customers will move to substitute	We have a very broad research and development program that is constantly reviewing and investing in new technologies, fuels, etc. As a result, we have a variety of ongoing projects	In a typical year, Cummins spends approximately three-quarters of its research and development budget on fuel efficiency and emissions

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							<p>products that compete with ours and we are slow to react and lose sales.</p>	<p>looking at alternatives and are already deploying very efficient engines and power generation equipment that can use a variety of fuels including biodiesel and natural gas. For example, Cummins was one of the four prime contractors leading SuperTruck teams, each developing their own visions of trucking's future. SuperTruck was one of several initiatives under the 21st Century Truck Partnership, which is a public-private effort to further stimulate innovation in the trucking industry. SuperTruck averaged a 75 percent increase in fuel economy, a 43 percent reduction in greenhouse gas (GHG) emissions and an 86 percent</p>	<p>reduction related product efficiency. In 2016, that was approximately \$475 million.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								gain in freight efficiency in 24-hour, head-to-head testing against a 2009 baseline truck – all significant improvements - in late 2013 testing in the US. As natural gas has become increasingly available, Cummins has been developing a full line of natural gas engines, both through its own engine business and through our joint venture, Cummins Westport Inc.	
Fluctuating socio-economic conditions	The financial condition of consumers in emerging markets may be affected by climate-related developments.	Reduced demand for goods/services	3 to 6 years	Indirect (Supply chain)	About as likely as not	Low-medium	The financial implications are hard to quantify as changes in customer purchase trends happen over time. However, the risk is that end user customers - those who buy the goods that trucks powered by Cummins engines	We have four complementary operating segments: Engine, Distribution, Components and Power Generation. These segments share technology, customers, strategic partners, brand recognition and our distribution network in order to	No additional cost to operations.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							<p>deliver - will have diminished buying power. Consequently, truck makers will deliver fewer goods and have less of a need to purchase newer trucks with newer engines.</p>	<p>compete more efficiently and effectively in their respective markets. In each of our operating segments, we compete worldwide with a number of other manufacturers and distributors that produce and sell similar products. Our products compete primarily on the basis of performance, fuel economy, speed of delivery, quality, customer support and price. Cummins works to balance revenue among business units and geographies. For example, in 2016, Cummins revenue was composed in this manner: engine 35%; distribution 28% components 21%; power systems 16%. 58% of sales were in the US -</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								and our strong North American presence has helped offset weakness in international markets.	

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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

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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

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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**

<b>Opportunity driver</b>	<b>Description</b>	<b>Potential impact</b>	<b>Timeframe</b>	<b>Direct/Indirect</b>	<b>Likelihood</b>	<b>Magnitude of impact</b>	<b>Estimated financial implications</b>	<b>Management method</b>	<b>Cost of management</b>
Renewable energy regulation	Cummins is positioning itself to participate in geographies that are diesel marginal power markets by combining renewable sources of	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	Cummins is experiencing significant demand from customers to reduce fuel consumption in prime power markets. This is expected to	Develop business capabilities globally to address this market	Investment of capital and resources for further business development, engineering and sales force increases

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	generation to reduce the consumption of diesel by less than 20 percent.						be a \$10 billion market that is growing.		would be part of business unit expenses.
Renewable energy regulation	Cummins capability in Micro-grids and Distributed Generation as a result of renewable energy goals and improvement of grid resiliency can provide opportunities.	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	Research says by 2020, total market size for micro-grids and distributed energy could be \$35 billion and \$180 billion respectively. Cummins anticipates being able to participate in these markets in the 10 percent range.	We are managing this by: - educating regulators about the positive aspects of combined heat and power plus alternative gas units - developing the right microgrid business model that includes innovation beyond the technology - educating regulators about using gen sets as a fast-ramping flexible generation solution to address the volatility on the grid with higher penetration of	In a typical year, Cummins spends approximately three-quarters of its research and development budget on fuel efficiency and emissions reduction related product efficiency. In 2016, that was approximately \$475 million. We expect to invest approximately 15 percent of the Power Systems capital or approximately \$50+ over the next five years in this

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								intermittent renewable energy. - advanced technology research (high efficiency gensets, power electronics) - strategic partnerships with renewable energy companies and Independent Power Producers - new hybrid product launches (already have for telecom applications) - development of new business models that combine natural gas generation (as opposed to diesel) for grid firming as a result of higher renewable penetration	alternative power.
Product	Power	Increased	1 to 3	Direct	Very likely	Medium-	This joint	Cummins and	Under the

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
efficiency regulations and standards	management company Eaton and Cummins announced an agreement to form a joint venture for automated transmissions for heavy-duty and medium-duty commercial vehicles. The joint venture will be named Eaton Cummins Automated Transmission Technologies. The global joint venture will provide customers with industry-leading transmission technologies and solutions that deliver best-in-class fuel efficiency, performance and uptime while leveraging both Cummins' and Eaton's global service and support networks.	demand for existing products/services	years			high	venture is viewed as market preservation and growth. In North America, Cummins heavy-duty market share is 40 percent, while the medium-duty market share is 75 percent.	Eaton will each own 50 percent of the new joint venture.	terms of the agreement, Eaton will receive \$600 million in cash from Cummins for 50 percent interest in the joint venture.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	The joint venture will design, assemble, sell and support all future medium-duty and heavy-duty automated transmissions for the commercial vehicle market. Eaton's current medium-duty automated transmission, Procision®, and next generation heavy-duty automated transmissions, will be part of the joint venture. In addition, the joint venture will market, sell, and support Eaton's current generation of automated heavy-duty transmissions to OEM customers in North America.								
Fuel/energy taxes and regulations	The Carbon Reduction Commitment Energy Efficiency	Reduced operational costs	Up to 1 year	Direct	Very likely	Medium	Globally, energy efficiency reductions are	Plant efficiency is already part of energy efficiency	Plant efficiency is already part of energy

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	scheme enacted in the UK in April 2010 can present opportunities for Cummins.						saving Cummins approximately \$50 million annually.	efforts.	efficiency efforts.
Air pollution limits	Cummins is investing in programs to develop new products to meet Non Road Euro Stage V regulations coming up in the EU from 2019. This will involve adding a Diesel Particulate Filter on the products to meet the Particulate count requirements. This will result in significant reduction of Particulate Matter emissions and unburnt hydrocarbons.	New products/business services	1 to 3 years	Direct	Virtually certain	Medium	The VPI programs individually have positive business cases that indicate that our development spend will yield profits through revenue generated from engine and aftertreatment sales.	The value package introduction and product preceding technology planning as part of our standard innovation management process is how we manage this opportunity	In a typical year, Cummins spends approximately three-quarters of its research and development budget on fuel efficiency and emissions reduction related product efficiency. In 2016, that was approximately \$475 million. Developing the small to larger engines for the EU market will cost Cummins approximately \$25 million dollars per product over multiple

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
									years. Less than a quarter of that will be spent on specifically developing the right combustion specifications to meet the stringent emission regulations
Fuel/energy taxes and regulations	Higher fuel prices could drive customer preference to more fuel efficient vehicles and Cummins could benefit.	Increased demand for existing products/services	>6 years	Direct	About as likely as not	Medium	The Department of Energy in 2016 announced that Cummins Corporate Research and Technology (Columbus, IN) will receive \$4.5 million to develop and demonstrate a Class 6 plug in hybrid delivery truck that reduces fuel consumption by 50 percent.	We would manage this through our existing energy and product efficiency platforms.	We would manage this through our existing energy and product efficiency platforms
Carbon taxes	Higher fuel prices could drive customer	Increased demand for existing	Unknown	Direct	About as likely as not	Medium	The Department of Energy in	We would manage this through our	We would manage this through our

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	preference to more fuel efficient vehicles and Cummins could benefit.	products/services					2016 announced that Cummins Corporate Research and Technology (Columbus, IN) will receive \$4.5 million to develop and demonstrate a Class 6 plug in hybrid delivery truck that reduces fuel consumption by 50 percent.	existing energy and product efficiency platforms	existing energy and product efficiency platforms
Emission reporting obligations	Cummins' reporting systems allow us to be well positioned if governments could regulate that companies account for their carbon emissions.	Other: Reputational benefit	>6 years	Direct	Likely	Low-medium	The financial implications would be avoidance or future fines or penalties, possibly in the millions of dollars, resulting from the inability to report.	Management would be through the use of our existing environmental management reporting system.	There are no direct costs associated with emission reporting obligations.
Air pollution limits	Cummins is investing in programs to develop new products to meet Euro VI regulations	New products/business services	1 to 3 years	Direct	Virtually certain	Medium-high	The VPI programs individually have positive business cases that indicate that	The value package introduction and product preceding technology planning as	In a typical year, Cummins spends approximately three-quarters of its research

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>coming up in India, China, Mexico and Brazil. This will involve adding a Diesel Particulate Filter on the products and meeting more stricter NOx regulations along with On Board Diagnostics. This will results in significant reduction of Particulate Matter emissions and unburnt hydrocarbons</p>						<p>our development spend will yield profits through revenue generated from engine and aftertreatment sales.</p>	<p>part of our standard innovation management process is how we manage this opportunity</p>	<p>and development budget on fuel efficiency and emissions reduction related product efficiency. In 2016, that was approximately \$475 million. Developing the complement of engines globally will cost Cummins around \$20 million dollars per product over the next three years. Approximately one quarter of that will be spent on specifically developing the right combustion specifications to meet emission regulations</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
International agreements	The Paris Agreement, Nationally Determined Contributions, and other related actions such as bilateral agreements on climate change between nations could present opportunities for Cummins.	Increased demand for existing products/services	>6 years	Indirect (Supply chain)	More likely than not	Unknown	No financial implication are identified at this time	Cummins continues to be a catalyst for climate action globally as countries pursue pathways to mitigate and adapt to climate change over the next several decades. Cummins will continue to use our products and services, current environmental sustainability goals, and focus on innovation to help countries meet their commitments to international agreements. Cummins' climate change strategy positions us to seek opportunities to be on top of emerging	We have identified no incremental costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								climate and technology trends in all 190 countries in which we operate including key markets such as China, India, US, EU, Mexico, and Brazil. Cummins is using a long-term global outlook and roadmap aligned to the Paris Agreement's key milestones including emissions "stocktakes."	
Renewable energy regulation	Cummins could enter into a virtual power purchase agreement as a way to increase our commitment to renewable energy. Cummins has operations in both regulated and deregulated utility states	Investment opportunities	1 to 3 years	Direct	About as likely as not	Low-medium	Financial implications could be possible and beneficial depending on contracts negotiated and outcomes of those contracts. VPPA can	We have a Cummins VPPA team that is comprised of cross-functional representatives from key functions needed to evaluate and	No other additional costs identified. Investment costs would vary according to projects chosen.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>which directly effects the opportunities for renewable energy investment. In deregulated states where Cummins operates, we are able to install on-site renewable energy as a way to increase our commitment. However, the majority of our operations are located in states that do not allow choice of utility and limits options. Virtual power purchase agreements provide Cummins with the opportunity to work with renewable energy developers to increase the renewable energy capacity/supply in the regulated states where we operate.</p> <p>Changes in utility</p>						<p>serve as a partial hedge of US electricity spend and provide capacity building for such projects.</p>	<p>possibly execute a VPPA. These functions include environment, finance, accounting, legal and treasury.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	regulations in regulated states would expand the opportunities for renewable energy installations for Cummins.								
Renewable energy regulation	Cummins invested in an opportunity to validate the compatibility of our mid-range engine platforms with a paraffin-based renewable diesel fuel. Thorough analysis of the emissions data from two in-service applications (transit bus and fire truck) revealed our mid-range engines are compatible with this fuel and that an impactful reduction in NOx and PM could be realized. Many customers requested we approved the use	New products/business services	Up to 1 year	Direct	Virtually certain	Medium	The announcement of our compatibility with paraffin-based renewable diesel fuel has led to direct sales of our mid-range engine platforms.	The value package change request as a part of our customer management process was how we managed this opportunity.	Additional costs to support the work to approve the compatibility of our mid-range engine platforms with paraffin-based diesel fuel amounted to almost \$50,000 USD.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	of paraffin-based renewable diesel fuel to enable them to meet local emissions regulations, and we met their request with a public announcement stating our mid-range engine platforms are fully compatible with paraffin-based renewable diesel fuels.								
Product efficiency regulations and standards	Cummins has additional project funding through the Supertruck2 project via U.S. Department of Energy. Cummins and partners (Peterbilt, Eaton and others) will engineer a Class 8 Truck and trailer to increase the freight efficiency (tons of freight per gram of CO2 emitted per mile hauled)	New products/business services	3 to 6 years	Direct	More likely than not	Medium-high	Project will cost a total of \$40 million.	Cummins, as the primary contractor for this proposal, will manage the overall project using the following items as a guide to ensure a high quality, timely delivery of the objectives; statements of work for the project and individual subcontractors,	No additional cost to implement, as Cummins was a participant in the first Super

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>by a factor of not less than 125 percent. The fuel economy will improve by a factor of 2 while the weight of the vehicle will be reduced to make up the 125 percent increase. The engine will demonstrate 50 percent Brake Thermal Efficiency over the drive cycle. Additionally, the engine will demonstrate a peak efficiency of 55%. The ST2 project is proposed to deliver a high efficiency, diesel powertrain system and Class 8 tractor and trailer demonstration. It will consist of an all new engine from Cummins and vehicle from Peterbilt. The project will affect</p>							<p>work breakdown structure and contracts reflecting that work, and a detailed workflow, resource loading and master schedule. The project is organized into five budget periods and concurrent phases; Vehicle baseline with model development to create a path to target, model validation, system development, engine demonstration and vehicle build, and finally, full vehicle system demonstration.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	all major systems of the vehicle in order to maximize the performance while considering the cost of each technology being applied to ensure a positive financial return for the manufacture sector as well as end user. The fuel economy will improve by a factor of 2 while the weight of the vehicle will be reduced to make up the 125 percent increase.								
Product efficiency regulations and standards	Cummins is investing in a new HD platform to deliver fuel economy and Greenhouse Gas benefits over the mandated regulatory standards	New products/business services	3 to 6 years	Direct	Very likely	Medium-high	This is roughly a \$50M-\$100M NPV program	The value package introduction and product preceding technology planning as part of our standard innovation management process is how we manage this opportunity	In a typical year, Cummins spends approximately three-quarters of its research and development budget on fuel efficiency and emissions reduction related

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
									product efficiency. In 2016, that was approximately \$475 million. Roughly \$25-\$30 million in development spend is expected to develop technologies that improve our fuel economy to meet and exceed GHG regulations for the Heavy Duty Big Bore platform.
Air pollution limits	Cummins is investing in programs to develop new products to meet the upcoming China Non Road regulations called CS IV in 2019. This will involve adding an aftertreatment to the engine. This will be the first	New products/business services	1 to 3 years	Direct	Very likely	Medium	The individual development programs have positive business impact on Cummins business in China. This indicate that our development spend of \$8 million per	The value package introduction and product preceding technology planning as part of our standard innovation management process is how we manage this	Developing the complement of engines for the China market will cost Cummins around \$8 million dollars per product over multiple years. Less than a quarter of that will be

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	time that the China market will have aftertreatment on the engine which has a potential to significantly reduce the air pollutants.						product over multiple years will yield profits through revenue generated from engine and aftertreatment sales.	opportunity.	spent on specifically developing the right combustion recipes to meet the stringent emission regulations
Product efficiency regulations and standards	In 2018, all Cummins Westport natural engines in production will be compliant to new on board diagnostic standards and also have the new ultra-low NOx emission levels. The 9 liter engine meets these standards now. From 2018 onward, any incremental move to natural gas will be a move to zero emissions,	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Medium	Cummins Westport sells approximately 10,000 engines a year for revenue of approximately \$300 million. Currently we have very high share of two key natural markets; approximately 30 percent share in Transit Bus and approximately 50 percent share in Refuse Trucks.	The value package introduction and product preceding technology planning as part of our standard innovation management process is how we manage this opportunity.	It has taken Cummins Westport approximately \$30 to \$50 million over several years to develop our 0.02 NOx technology with Natural Gas. Ggoing forward management of this emissions contribution is just cost of doing business.

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 extremes and droughts	Changes in frequency of extreme weather events	New products/business services	Up to 1 year	Direct	Very likely	Medium	With the increased emphasis on carbon emissions, and the impact of shale discoveries and their potential to keep gas prices low for the long term, distributed generation with natural gas, whether it is used in a combined heat and power application, or as a simple power generation application has potential for further revenue.	Cummins in Africa is investing in building gas power generation capability through the roll out of project companies in Nigeria, South Africa and East Africa. We have invested in a new joint venture in Nigeria that is the dedicated gas engineering, procurement & construction (EPC) company in the country. We have also invested in another JV that operates gas power plants as an Independent Power Produce (IPP).	We expect our gas generation sales to grow 300% over the next 3-5 years. We also expect that governments and private industry in Africa to make significant investments in Angola, West Africa, Tanzania and Mozambique to build distribution infrastructure as there has been significant finds of gas reserves. Overall, we are investing from \$10 - \$50 million over the program life.
Change in precipitation extremes and droughts	Changes in frequency of extreme weather events	New products/business services	Up to 1 year	Direct	Likely	Medium	With increased frequency of weather related events the impact of power outages or significant	Cummins Energy Ventures is investing in predictive analytics of wholesale power market with the	We expect to deploy over 300 megawatts of distributed generation gas assets across the deregulated N.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							fluctuation of power prices the ability to use predictive analytics combined with gas generation allows C&I customers to achieve increased resilience, cost savings and achieve lower carbon footprint than diesel standby generation	development of IPP's in N. America to achieve economic and resiliency through natural gas "behind the meter" generation.	America market over the course of the next 5 years in the municipal, energy retailer and commercial and industrial segments.

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
Changing consumer behavior	Cummins is well positioned to support and accelerate the adoption of low	New products/business services	1 to 3 years	Direct	Virtually certain	Medium	Electrification technologies are ready now for some key markets, such as	Cummins has created a new electrification team specifically for this product.	Cummins has been investing \$5-15M annually in electrification

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>carbon powertrains by virtue of its deep knowledge of the required technologies, broad reach in the commercial vehicle space, and ability to service, support, recondition and recycle products worldwide. We are launching our first product into the urban bus market. We expect urban bus to be 50% electrified in Europe before 2025, and 50% electrified in North America by 2030. This adoption is supported by Cummins availability of drivetrains for these vehicles beginning on</p>						<p>urban bus, port drayage and mining. Cummins is well positioned in those markets providing us with a high likelihood of Cummins serving those markets as they evolve. The evolution of broader markets will be vary based on regulation, technology advancements and TCO factors like cost of new vs. old technologies and fuels. Cummins intends to be the electrification leader in all of the markets we serve today. Our opportunity stems from both market preservation, increased income due to the shift of dollars from operation to</p>	<p>This team will ensure that we make the right internal investments in both component and system technology, build the capabilities we need and create the right external partnerships to meet our customers' needs in prioritized markets,</p>	<p>since 2007. Investment is increasing 2-3 times over the next few years to develop the bus, truck and offroad powertrains. We will increase investment as needed to assure as adoption increases that Cummins product will be available and preferred.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	2019, and will have a major impact on carbon reduction and also quality of life in cities. Further, Cummins has already developed a powertrain for class 4 trucks, and is engaging in development for a wider range of vehicles to support market adoption in truck and offroad						capitalization, and entry into adjacent markets with products like batteries. It is very early to predict revenue due to uncertainty in adoption rates, but we intend to support all of our market segments as adoption proceeds.		
Changing consumer behavior	Development of Class 6 medium-duty, plug-in, hybrid-electric truck that can reduce fuel consumption by up to 50 percent.	New products/business services	1 to 3 years	Direct	More likely than not	Medium	No financial implications, as this is a research project.	Cummins is partnering with PACCAR on the project, and the full team includes representatives from The Ohio State University, National Renewable Energy Laboratory and Argonne	The project was awarded a \$4.5 million research grant by the U.S. Department of Energy.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								National Laboratory. With their expertise in internal combustion engines and related products, Cummins researchers will optimize the powertrain by selecting the engine with the best architecture to use as an electric commercial vehicle range extender, using the engine to manage the charge level of the all-electric drive battery pack. The range extender will be integrated, using advanced vehicle controls, with the electrified powertrain and other applicable technologies.	
Fluctuating socio-	The desire for more goods as	Increased demand for	Up to 1 year	Direct	Very likely	Medium-high	The potential implications	We would manage this	We see no incremental

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
economic conditions	a result of a growing global middle class would create greater demand for products to be shipped in trucks.	existing products/services					could be large, but hard to quantify, as sales increases happen over time. But Cummins projects increased sales in China and India as the size of the middle class increases and more and more goods need to be shipped in trucks equipped with Cummins engines. In addition, as emissions regulations become more stringent globally, Cummins is in the best position to profit from those regulations.	opportunity by using existing corporate strategy and growth office structure to evaluate new business opportunities in adjacent markets and technology.	costs beyond what sites would normally do to prepare for increased demand.
Increasing humanitarian demands	Cummins firmly believes that our business is only as healthy as the communities it serves.	Wider social benefits	Up to 1 year	Direct	More likely than not	Medium	Cummins does already give humanitarian financial aid and sometimes product donations to	Our Corporate Responsibility department and The Cummins Foundation handle this work	Cummins also operates several foundations to support its corporate responsibility

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							countries where there has been a need.		efforts. In 2016, the company gave \$13.9 million through grants and other strategic community investments to support employee led projects in more than 25 countries
Reputation	Cummins reputation as a sustainability leader provides opportunities.	Other: recruiting and retaining talented employees	Up to 1 year	Direct	Virtually certain	Medium-high	Cummins can save money on recruiting costs by retaining employees who desire to work at an environmentally sustainable company. Estimates are \$3,000 to \$5,000 to recruit a new employee.	Continuing to educate employees about Cummins environmental actions. As part of the release of our Global Environmental Sustainability Plan, Cummins established June Environmental Month and is encouraging employees to do water, waste and energy reduction activities at home, work and in the community.	None additional identified

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other drivers	Customer need for more fuel efficient products, but not driven by regulation While working to develop an advanced waste heat recovery system for the SuperTruck program, Cummins Turbo Technologies developed the Electrical Waste Heat Recovery Turbine Expander. This turbine expander uses an organic rankine cycle to capture what would otherwise be lost energy, in the form of heat and then turns it into useful mechanical or electrical power.	New products/business services	>6 years	Direct	Likely	Medium	This technology results in reduced fuel consumption and reduced CO2 output. Estimated savings is 5 percent in fuel savings, resulting in \$5,000 savings per year.	We are managing this opportunity as a component that could be sold to external customers as are our other components.	The funding for this project has been a combination of Cummins funding that was for several years then supplemented by a grant from the U.S. Department of Energy. It is now part of our research and technology budget, a subset of our overall research and development spending.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other drivers	Customer requirement for more fuel efficient products, but not driven by regulation. Not truly change in behavior, as customers always want greater efficiency. For heavy duty pick up truck engines, key technologies in development are: combustion and air handling friction and parasitics high efficiency aftertreatment variable valve actuation weight management stop start transmission integration	Increased demand for existing products/services	>6 years	Direct	Very likely	Medium	When used together for maximum efficiency, these technologies could result in an 8-13 percent CO2 reduction	We are managing this opportunity as a continuing part of our engine technology development.	Costs are included in our research and technology budget, a subset of our overall research and development spending.
Other drivers	Customer requirement for more fuel efficient	Increased demand for existing products/services	>6 years	Direct	Very likely	Medium	When used together for maximum efficiency, these	We are managing this opportunity as a continuing part of	Costs are included in our research and technology

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	products, but not driven by regulation. Not truly change in behavior, as customers always want greater efficiency. For medium heavy-duty vocational engines, key technologies in development are: combustion and air handling friction and parasitics high efficiency aftertreatment variable valve actuation						technologies could result in a 5-11 percent CO2 reduction	our engine technology development.	budget, a subset of our overall research and development spending.
Other drivers	Customer requirement for more fuel efficient products, but not driven by regulation. Not truly change in behavior, as customers always want greater efficiency. For	Increased demand for existing products/services	>6 years	Direct	Very likely	Medium	When used together for maximum efficiency, these technologies could result in a 9-15 percent CO2 reduction	We are managing this opportunity as a continuing part of our engine technology development.	Costs are included in our research and technology budget, a subset of our overall research and development spending.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	heavy-duty tractor engines, key technologies in development are: combustion and air handling friction and parasitics high efficiency aftertreatment waste heat recovery								
Reputation	Cummins reputation as a sustainability leader provides opportunities.	Increased stock price (market valuation)	1 to 3 years	Direct	More likely than not	Low-medium	Having a reputation as a sustainability leader could cause the financial community to reward Cummins with a higher market valuation.	The Company's corporate environmental sustainability team continues to be the driving force behind the development of sustainability goals and reporting on the progress in achieving them. The Cummins Leadership team reviews a balanced scorecard each quarter, which is a collection of data spanning several key	We believe no incremental costs to exist, as most of the structures and resources are in place.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>aspects of the company's performance. Eight environmental metrics are included in the scorecard: Energy Intensity, GHG Intensity, Waste Recycling Rate, Waste Zero Disposal, Water Intensity, Water Neutral Sites, CO2 reduction from products in use, CO2 reduction from logistics.. These metrics are the same environmental metrics that are separately submitted to the Chief Operating Officer and have been incorporated into the balanced scorecard so that the entire leadership team feels accountable for the results.</p>	

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**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

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**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

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**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

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**Further Information**

Links to recent stories about electrification announcement <https://www.ibj.com/articles/64228-cummins-to-launch-its-first-all-electric-products-in-2019>  
<https://www.thestreet.com/story/14181616/1/tesla-faces-another-long-term-competitor-as-this-98-year-old-firm-positions-for-e-vehicles.html>

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**Attachments**

**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)**

<b>Scope</b>	<b>Base year</b>	<b>Base year emissions (metric tonnes CO2e)</b>
Scope 1	Fri 01 Jan 2010 - Fri 31 Dec 2010	249097
Scope 2 (location-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	547158
Scope 2 (market-based)	Fri 01 Jan 2010 - Fri 31 Dec 2010	547158

**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**

**Please select the published methodologies that you use**

US EPA Climate Leaders: Indirect Emissions from Purchases/Sales of Electricity and Steam
US EPA Climate Leaders: Direct Emissions from Stationary Combustion
US EPA Climate Leaders: Direct Emissions from Mobile Combustion Sources
US EPA Mandatory Greenhouse Gas Reporting Rule
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
ISO 14064-1

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**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**

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**CC7.3**

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

<b>Gas</b>	<b>Reference</b>
CO2	IPCC Second Assessment Report (SAR - 100 year)
CH4	IPCC Second Assessment Report (SAR - 100 year)
N2O	IPCC Second Assessment Report (SAR - 100 year)
HFCs	IPCC Second Assessment Report (SAR - 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	53.11	Other: kg per MMBtu	Solid, gaseous, liquid, and biomass fuels: Federal Register (2009) EPA; 40 CFR Parts 86, 87, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp. 56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA; 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule, 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subparts C and AA: Table C-1 to Subpart C—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel, Table C-2 to Subpart C—Default CH4 and N2O Emission Factors for Various Types of Fuel, and Table AA-1 to Subpart AA of Part 98—Kraft Pulping Liquor Emissions Factors for Biomass-Based CO2, CH4, and N2O.
Distillate fuel oil No 2	74.21	Other: kg per 73.96r MMBtu	Solid, gaseous, liquid, and biomass fuels: Federal Register (2009) EPA; 40 CFR Parts 86, 87, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp. 56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA; 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule, 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subparts C and AA: Table C-1 to Subpart C—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel, Table C-2 to Subpart C—Default CH4 and N2O Emission Factors for Various Types of Fuel, and Table AA-1 to Subpart AA of Part 98—Kraft Pulping Liquor Emissions Factors for Biomass-Based CO2, CH4, and N2O.
Liquefied petroleum gas (LPG)	61.96	Other: kg per MMBtu	Solid, gaseous, liquid, and biomass fuels: Federal Register (2009) EPA; 40 CFR Parts 86, 87, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp. 56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA; 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule, 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subparts C and AA: Table C-1 to Subpart C—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel, Table C-2 to Subpart C—Default CH4 and N2O Emission Factors for Various Types of Fuel, and Table AA-1 to Subpart AA of Part 98—Kraft Pulping Liquor Emissions Factors for Biomass-Based CO2, CH4, and N2O.
Sub bituminous coal	97.92	Other: kg per MMBtu	Solid, gaseous, liquid, and biomass fuels: Federal Register (2009) EPA; 40 CFR Parts 86, 87, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp.

Fuel/Material/Energy	Emission Factor	Unit	Reference
			56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA; 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule, 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subparts C and AA: Table C-1 to Subpart C—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel, Table C-2 to Subpart C—Default CH4 and N2O Emission Factors for Various Types of Fuel, and Table AA-1 to Subpart AA of Part 98—Kraft Pulping Liquor Emissions Factors for Biomass-Based CO2, CH4, and N2O.
Motor gasoline	70.47	Other: kg per MMBtu	Solid, gaseous, liquid, and biomass fuels: Federal Register (2009) EPA; 40 CFR Parts 86, 87, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp. 56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA; 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule, 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subparts C and AA: Table C-1 to Subpart C—Default CO2 Emission Factors and High Heat Values for Various Types of Fuel, Table C-2 to Subpart C—Default CH4 and N2O Emission Factors for Various Types of Fuel, and Table AA-1 to Subpart AA of Part 98—Kraft Pulping Liquor Emissions Factors for Biomass-Based CO2, CH4, and N2O.
Biodiesels	2.5	kg CO2e per liter	US EPA Emission Factor Hub, November 2015 v2
Other: Ethanol 100%	1.52	kg CO2e per liter	US EPA Emission Factor Hub, November 2015 v2

#### 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

303885

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	Market-based emissions reflect residual mix factors for European facilities. Source: European Residual Mixes 2015; Association of Issuing Bodies; Version 1.0, 13th May 2016 As residual mix factors are not currently available for facilities outside of Europe, defaulted to location based emissions for purchased electricity. The following sources were used. 1) US EPA eGRID 2014, v2, February 27, 2017 2) International Sources (Unless mentioned separately) Year 2014 factors from "CO2 Emissions from Fuel Combustion (2016 Edition)", IEA, Paris. 3) CH4/N2O: International Electricity Emission Factors by Country, 1999-2002.xls. International Energy Agency, as cited by EIA for 1605b. <a href="http://www.eia.doe.gov/oiaf/1605/emission_factors.html">http://www.eia.doe.gov/oiaf/1605/emission_factors.html</a> 4) Australia: Latest estimated scope 2 emission factors for consumption of purchased electricity from the grid; Source: National Greenhouse Gas Accounts (NGA) Factors, August, 2016. 5) Brazil: Year 2014 factors from the Ministry of Science, Technology, and Innovation. "Fatores de emissão de CO2 do Sistema Interligado Nacional do Brasil" 6) Canada: "National Inventory Report 1990-2013", Annex 11. Year 2013 factors. 2015 Release 7) India: CO2 factors from India Central Electricity Authority: CO2 Baseline Database for the Indian Power Sector, Version 11.0, April 2016 8) UK: 2016 Government GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors. Year 2014 Factors. October 2016 Release For Market based calculations, Cummins used European Residual Mixes 2015, Association of Issuing Bodies, Version 1.0, 13th May 2016 for European countries in the list. For other countries, Cummins used the location based factors as individual electric utility factors were not available.

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
535703	537851	Location based emissions are calculated based on the local electricity grid factors as available in US EPA, IEA or country specific sources. Market based emissions are calculated based on the European Residual Mixes for applicable countries (Source: European Residual Mixes 2015; Association of Issuing Bodies; Version 1.0, 13th May 2016) and defaulted to location based factors for rest of the world.

**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?

No

**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

**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%	Assumptions Extrapolation Metering/ Measurement Constraints	Most sites use utility bills to track and report the fuel usage data. However, this can be different from the actual usage due to various factors. Eg: time period of invoice might be different from the month beginning and month end dates. If a bill is not available the data might be derived through estimations / extrapolations using logical assumptions.
Scope 2 (location-based)	Less than or equal to 2%	Assumptions Extrapolation Metering/ Measurement Constraints	Most sites use utility bills to track and report the electricity, steam and hot water usage data. However, this can be different from the actual usage due to various factors. Eg: time period of invoice might be different from the month beginning and month end dates. If a bill is not available the data might be derived through estimations / extrapolations using logical assumptions.
Scope 2 (market-based)	More than 2% but less than or equal to 5%	Assumptions	Market-based emissions are calculated using residual mix factors for European facilities. Source: European Residual Mixes 2015; Association of Issuing Bodies; Version 1.0, 13th May 2016 As residual mix factors are not currently available for facilities outside of Europe and the key utilities where Cummins operate could not provide the market factors, defaulted to location based emissions for purchased electricity.

#### 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	<a href="https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC8.6a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC8.6a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf</a>	Page 1	ISO14064-3	100

#### 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

#### 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	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC8.7a/GHG%20Cummins%202016%20-%20CDP%20GHG%20Verification%20Statement.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC8.7a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf</a>	Page 1	ISO14064-3	100
Market-based	Annual process	Complete	Limited assurance	<a href="https://www.cdp.net/sites/2017/36/4136/Climate%20Change%202017/Shared%20Documents/Attachments/CC8.7a/GHG%20Cummins%202016%20-%20CDP%20GHG%20Verification%20Statement.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC8.7a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf</a>	Page 1	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
Other: Water Used and Waste Generation	As part of the third party verification, Cummins also verified the total water use and individual and total waste as well as recycled figures

#### CC8.9

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

Yes

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**CC8.9a**

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

14.3

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**Further Information**

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

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**CC9.1**

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

Yes

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**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	179419
Australia	4667
Brazil	3447
China	33434

Country/Region	Scope 1 metric tonnes CO2e
India	16249
Mexico	4843
South Africa	1894
United Kingdom	23376
Rest of world	36556

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**CC9.2**

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

By business division  
By activity

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**CC9.2a**

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

Business division	Scope 1 emissions (metric tonnes CO2e)
Engine Business	61388
Power Systems	85153
Generator Technologies	4633
Supply Chain Logistics	4784
Technical Centers	49564
New and ReCon Parts	4571

<b>Business division</b>	<b>Scope 1 emissions (metric tonnes CO2e)</b>
Distribution	64007
Filtration	7200
Electronics and Fuel Systems	3534
Turbo Technologies	7183
Emission Solutions	3525
Shared Services	8343

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**CC9.2b**

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

<b>Facility</b>	<b>Scope 1 emissions (metric tonnes CO2e)</b>	<b>Latitude</b>	<b>Longitude</b>

---

**CC9.2c**

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

<b>GHG type</b>	<b>Scope 1 emissions (metric tonnes CO2e)</b>

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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)
Stationary Combustion	214010
Mobile Sources	57423
Refrigerant	15377
Other Fugitive	26
Generation of Sold Electricity	17049

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**Further Information**

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

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**CC10.1**

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

Yes

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**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	283603	283603	521087	0
Australia	7484	7484	8594	0
Brazil	2837	2837	20881	0
China	101169	101169	149875	0
India	74388	74388	90564	0
Mexico	22918	22918	50019	0
South Africa	3558	3558	3509	0
United Kingdom	24350	24413	50561	0
Rest of world	15396	17481	44204	0

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**CC10.2**

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

By business division  
By activity

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**CC10.2a**

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

<b>Business division</b>	<b>Scope 2, location-based (metric tonnes CO2e)</b>	<b>Scope 2, market-based (metric tonnes CO2e)</b>
Engine Business	201976	201986
Power Systems	67944	67967
Generator Technologies	13161	13730
Supply Chain - Logistics	11713	12120
New and ReCon Parts	19351	19352
Technical Centers	41984	41984
Distribution	45839	46105
Filtration	38682	38669
Electronics and Fuel Systems	32821	32821
Turbo Technologies	26974	26993
Emission Solutions	11087	11951
Shared Services	24171	24173

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**CC10.2b**

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

<b>Facility</b>	<b>Scope 2, location-based (metric tonnes CO2e)</b>	<b>Scope 2, market-based (metric tonnes CO2e)</b>

---

**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)
Electricity	531188		533336
Steam	114		114
Hot Water	4401		4401

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**Further Information**

**Page: CC11. Energy**

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**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%

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**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	286
Steam	10537
Cooling	0

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**CC11.3**

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

1314941

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**CC11.3a**

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

Fuels	MWh
Distillate fuel oil No 1	509276
Natural gas	565427
Propane	9465
Motor gasoline	67015
Diesel/Gas oil	141665
Other: Stationary Gasoline	922
Other: Jet fuel	21171

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**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
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	0	Cummins has no purchases or generation of low carbon electricity, heat, steam or cooling that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a. Cummins used the European Residual Mixes for applicable countries (Source: European Residual Mixes 2015; Association of Issuing Bodies; Version 1.0, 13th May 2016) and defaulted to location based factors for rest of the world.

**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
954891	924527	30364	721	721	Cummins facilities primarily get the electricity from the utilities. However, electricity is also generated on-site using power gensets, electricity recovered during product test operations and from on-site solar panels. This electricity is used for on-site use that offsets the electricity grid purchase. Of the 4665 MWh renewable energy produced from on-site solars in 2016, 3943 MWh is purchased via power purchase agreement and not owned or operated by the company. Since this is not owned or operated by the company, the 3943 MWh is now included in the "Consumed electricity that is

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
					purchased" and 721 MWh is reported as "Total renewable electricity produced."

**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
Emissions reduction activities	2.3	Decrease	In 2016, Cummins implemented 175 projects that accounted for net reduction of 19,327 metric tons of CO2e
Divestment	0	No change	There were no divestments in 2016
Acquisitions	0.1	Increase	Cummins continued to acquire the North American distributors. Acquisition in 2016 comprised of California and Hawaii locations that added 737 metric tons of CO2e

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Mergers	0	No change	There were no mergers in 2016
Change in output	3	Increase	Increase in production resulted in net increase in absolute emissions. Part of this was offset by emission reduction activities
Change in methodology	0	No change	No change in methodology
Change in boundary	0	No change	No change in boundary
Change in physical operating conditions	0	No change	No change in physical operating conditions
Unidentified	0	No change	No unidentified increases
Other	0	No change	No other changes

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#### 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

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#### 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
0.0000498	metric tonnes CO2e	16894260000	Market-based	11.9	Increase	Cummins uses 2010 as the new baseline year for 2020 energy and GHG goals. The adjustments to revenue is made considering this change. The intensity measure increased in 2016 as compared to 2015 due to two reasons: 1) The total revenue adjusted to 2010 decreased by 10.3 percent in 2016 2) Market based gross absolute emissions increased by 0.4 percent in 2016

**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
15.1550	metric tonnes CO2e	full time equivalent (FTE) employee	55400	Location-based	0.4	Increase	Location based gross emissions increased by 0.8 percent in 2016. The FTE increase slightly by 0.4 percent. This resulted in a net increase in FTE based intensity measure
15.1938	metric tonnes CO2e	full time equivalent (FTE) employee	55400	Market-based	0.1	Increase	Market based gross emissions increased by 0.4 percent in 2016. The FTE increase slightly by 0.4 percent. This resulted in a net increase in FTE based intensity measure

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**Further Information**

**Page: CC13. Emissions Trading**

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**CC13.1**

**Do you participate in any emissions trading schemes?**

No, and we do not currently anticipate doing so in the next 2 years

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**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

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**CC13.1b**

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

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**CC13.2**

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

No

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**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

#### 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	3164000	The estimate is based on two types of spend data: Direct and Indirect. For calculating the emissions associated with the purchased raw materials used in the manufacturing (direct spend), cradle to gate approach was used based on the 2011 data. This was then	100.00%	There is no perfect way to estimate the scope 3 emissions associated with purchased goods and services. Hence Cummins used the 2016 spend data (in US Dollars converted to GB Pounds) and UK Defra's emission factors to estimate the associated emissions. For raw materials used in

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>adjusted to 2016 based on revenue change factor. For indirect spend like IT, supply chain services, real estate, engineering, corporate services, etc., 2016 spend data was used. To calculate the emissions, UK DEFRA's SIC Codes most aligned with the spend category was used (Reference/Source of Emission factors: Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance; June 2013; pb13944-env-reporting-guidance.pdf; defra.uk). Several assumptions were made: (1) 100 percent of MRO/Chemicals, real estate and corporate services come under this category (2) 50 percent of the IT and engineering purchases are purchased goods and rest are capital goods (3) 20 percent of supply chain services are in this category and rest are upstream transportation (4) Expenses that are not tracked through the centralized database is assumed to be of the same proportion as compared to centralized tracking database.</p>		<p>manufacturing of products, a hot spot analysis study on a fast moving Cummins engine performed in 2011 was used as reference.</p>
Capital goods	Relevant, calculated	387000	<p>The estimate is based on Cummins 2016 total spend data for indirect purchase expenses (including IT, engineering, machinery, facilities and construction). UK DEFRA's SIC Codes most aligned to the</p>	100.00%	<p>There is no perfect way to estimate the scope 3 emissions associated with capital goods. Hence Cummins used the 2016 spend data (in US Dollars converted to GB Pounds) and UK Defra's emission factors to estimate the associated</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
			spend category was used to estimate the scope 3 emissions (Reference/Source of Emission factors: Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance; June 2013; pb13944-env-reporting-guidance.pdf; defra.uk). Assumptions include: (1) 100 percent spend on facilities and construction as well as machinery are towards capital goods; (2) 50 percent of IT and engineering purchases are capital goods		emissions.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	167000	The estimates are based on the direct and indirect energy consumed, such as electricity, natural gas, diesel, gasoline, jet fuel, etc. Emission factors for upstream emissions of purchased electricity are based on life-cycle analysis software for the US as available through the US EPA's EF Hub and on UK Defra 2012 Guidelines for other countries. Emission factors for T&D losses are based on US EPA's eGRID database for the US, and on UK Defra 2012 Guidelines for other countries.	100.00%	This includes scope 3 emissions from fuel and energy related activities from owned and operated facilities, 50:50 joint ventures subscribed to Cummins Enterprise Environmental Management System (EMS) and 50:50 manufacturing JV where Cummins has significant influence on operations
Upstream transportation and distribution	Relevant, calculated	537000	The estimate is based on Cummins 2016 total spend data for supply chain services. Cummins assumes that 70 percent of the upstream transportation and distribution was by road, 10 percent each by rail, water and air. UK DEFRA's SIC Codes for Rail,	100.00%	Used 2016 spend data for Supply Chain Services to calculate the upstream transportation and distribution emissions as described in the methodology

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
			Road, Water and Air categories and 2009 emission factors were utilized to estimate the scope 3 emissions (Reference/Source of Emission factors: Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance; June 2013; pb13944-env-reporting-guidance.pdf; defra.uk).		
Waste generated in operations	Relevant, calculated	6700	U.S. Environmental Protection Agency's (EPA) Waste Reduction Model (WARM) was used to quantify the associated scope 3 emissions based on 2016 quantities of (1) landfilled waste, (2) combusted waste and (3) composted waste quantities, from Cummins global facilities. As there were no separate categories available for incinerated waste and waste that was burned for energy recovery, both were included in the combusted waste category and default factors in the tool were used to calculate the associated GHG emissions. Due to non-availability of exact categories, the general refuse / garbage generated was categorized as Mixed Organics as it primary includes food waste from canteen, grass clippings from lawn etc. Process derived industrial waste was categorized as Mixed MSW.	100.00%	In 2016, Cummins recycled about 89.0 percent of the global waste generated. This includes metals, electronic items, paper, plastics and corrugated boxes. As the model shows a GHG reduction for recycled product categories, the same was not included in the WARM model, except for the combusted waste for energy recovery and composted waste
Business travel	Relevant, calculated	33000	All air travel data are tracked through a service provided to Cummins by AmEx.	100.00%	The base data was provided by American Express, the air travel services provider and

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 are calculated using US EPA EF Hub factors, November 2015 v2 Table 8, as per short, medium, and long haul air travel categories and the associated emission factors. Car rental mileage for 2016 is provided by Hertz. The total emissions are calculated using US EPA EF Hub Passenger Car factors.		Hertz, car rental provider. This data is emissions from air travel for more than 11,500 flights and car rentals worldwide
Employee commuting	Relevant, calculated	110000	The estimates were made partly from direct data and partly from indirect data based on assumptions of commuter mileage and mode of transportation for each country where Cummins has significant operations. The factors are based on US EPA's EF Hub (Source of Emission factors: US EPA (2008); Greenhouse Gas Inventory Protocol Core Module Guidance - Direct Emissions from Mobile Combustion Sources, EPA Climate Leaders, Tables A-6 and A-7)	100.00%	Cummins employees outside of the US tend to use transportation modes other than single-passenger personal vehicles more than their US counterparts. While it results in fewer GHG emissions, it is harder to track. This data represents the estimates conducted in 2012 by the regional environmental leaders that was adjusted to 2016 employee headcount.
Upstream leased assets	Relevant, calculated	7000	The estimates are based on the occupied area (in sq ft) multiplied by the average emissions intensity (emissions / sq ft). The total square footage of upstream leased assets is assumed to be the same as 2012. The Scope 1 and Scope 2 intensity is calculated based on the average country specific intensities that CMI owned/managed facilities had in 2016.	90.00%	The list of facilities included in this category are not part of the regular environmental metrics reporting as most of these are shared facilities where Cummins occupies a portion and don't have direct control on the operations as well as utilities. The maintenance/operations are normally included in the lease and controlled by the lessor.
Downstream	Relevant,	0	Most Cummins customers pay for the	0.00%	This is relevant but not yet calculated category.

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
transportation and distribution	not yet calculated		transportation of products sold to them, either directly or via part of an overall invoice. Cummins do not yet have a tracking mechanism in place to determine what the emissions of that transportation are at this time.		When Cummins transports products internally to a different Cummins entity, it is assumed to be part of the upstream transportation of the receiving entity.
Processing of sold products	Relevant, calculated	2100	Weighted-average by volume of the various engine families (light/medium duty, heavy duty, high horse power) was multiplied by the estimated energy required to install each of them. Engine volumes were taken from annual report Form 10-K and JV engine volumes from 2015. Assumptions were made on the power factor of the hoists / equipment as well as average time taken to install each category product.	100.00%	This is based on engines shipped as detailed in Cummins 2016 Annual Report on Form 10-K and JV actual volumes from 2015.
Use of sold products	Relevant, calculated	800000000	In the calculation, Cummins used volumes by segment and engine model, which were then multiplied by the attrition rates to determine the volumes in operation each year moving forward. Cummins used their long-standing New and Recon parts proprietary parts consumption model as well as customer engineering analysis to determine the attrition rate. These factors were multiplied each of these yearly figures by an age factor (i.e., a 10 year old truck will not operate the same number of hours or miles as a brand new truck) and then	100.00%	The estimated emissions are different from the forward looking end of life emissions from all products sold in the year 2016, but the emissions from all the products currently being used. i.e. the lifetime CO2e emissions of more than 8 million engines produced by Cummins and its joint ventures that is being operational. Overall volume of engines for custodial plants was down in 2016, the associated GHG emissions went down due to product mix: • Sharp drop in engines for off-highway (construction & agriculture), HHP (mining, O&G, rail, military, etc.) & PowerGen more than off-set the increase in on-highway •

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
			converted miles per gallon or gallons per hour to million metrics tons of CO2e. The CO2e conversion factor for Diesel was applied based on the EPA's EF Hub and AR 4.		MMT of CO2 was up 32 for on-hwy, down 32 for off-hwy, down 36 for HHP and down 70 for PowerGen
End of life treatment of sold products	Relevant, calculated	50000	In 2011, Cummins conducted hot spot analysis on its top selling product. Part of the study evaluated the end of life impacts. The waste related to sold product is primarily iron and steel (more than 90 percent). The emission estimates are based on landfilling, processing, and recycling of the generated wastes associated with those products. The assumption is (1) 95 percent is recycled, reprocessed or reused and (2) 5 percent is landfilled or scrapped. The estimated emissions from 2011 were adjusted based on the change in the number of engine units shipped between 2011 and 2016	100.00%	The estimated emissions are different from the forward looking end of life emissions from all products sold in the year 2016. Heavy-duty truck engine sales decreased \$673 million primarily due to lower demand in the North American heavyduty truck market with decreased engine shipments of 38 percent. Medium-duty truck and bus sales decreased \$235 million primarily due to lower demand in most global medium-duty truck markets with decreased engine shipments of 17 percent, primarily in North America, Brazil and Mexico. Off-highway sales decreased \$64 million primarily due to decreased engine shipments in several North American industrial markets, partially offset by increased unit shipments of 25 percent in international construction markets.
Downstream leased assets	Relevant, calculated	40000	This represents our rental generator fleet. Cummins has made assumptions on generator use - as some generators are used as backup power and others operate full time. The total number of rental fleet generators at North American distributor locations were collected for 2012. Total fuel usage was estimated based on the number	95.00%	This calculation is from 1340 units rented through our North American distributors during 2012 and doesn't include similar fleets outside NA. In 2016, since there was no separate power solutions revenue available, used the revenue from power systems business as proxy. Power systems business saw a 14 percent drop in business in 2016 as compared to 2015.

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
			of generators from each kW category, efficiency and monthly average run time. The emissions were adjusted to the change in power solutions business revenues in 2016 Vs. 2012		
Franchises	Not relevant, explanation provided	0	Not applicable	0.00%	Cummins does not have any franchises.
Investments	Relevant, not yet calculated	0	In 2012, Cummins had reported emissions from 50:50 unconsolidated manufacturing joint ventures as emissions from investments. This is now included in Scope 1 and 2 after a change in boundary. However, Cummins understands that emissions from investments can be expanded to minority / unconsolidated joint venture operations where Cummins doesn't have operational or administrative control.	0.00%	Cummins holds minority stake (<20% and 20-50% equity investee) in several distributor businesses and manufacturing operations especially in North America and Asia. This is not tracked currently.
Other (upstream)	Not evaluated	0	Cummins have not evaluated other upstream scope 3 emissions	0.00%	Cummins have not evaluated other upstream scope 3 emissions
Other (downstream)	Not evaluated	0	Cummins have not evaluated other downstream scope 3 emissions	0.00%	Cummins have not evaluated other downstream scope 3 emissions

**CC14.2**

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

Third party verification or assurance process in place

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**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	<a href="https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC14.2a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf">https://www.cdp.net/sites/2017/36/4136/Climate Change 2017/Shared Documents/Attachments/CC14.2a/GHG Cummins 2016 - CDP GHG Verification Statement.pdf</a>	Pages 1 and 2; Scope 3 Emissions	ISO14064-3	98

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**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

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**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	Change in output	8	Decrease	This was due to the 2016 reduction in purchased goods and services spend as well as the revenue compared to 2011. The impact on the US Dollars appreciation against UK pound sterling increased the emissions, however, smaller than spend decrease. These resulted in net decrease in purchased goods and services scope 3 emissions.
Capital goods	Change in output	6	Decrease	There was a net reduction in the total expenses on capital goods in 2016 vs. 2015. This was larger than the impact due to US dollars appreciation against UK pound sterling in 2016. The later resulted in the overall increase in emissions by more than 10 percent as we are using UK Defra factors.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	3	Increase	The absolute energy usage increased in 2016 vs. 2015 primarily due to North America distributor acquisitions and addition of new facilities. These resulted in the net increase in the scope 3 absolute emissions associated with that fuel / electricity / steam / hot water purchases.
Upstream transportation & distribution	Emissions reduction activities	18	Decrease	The total supply chain spending decreased in 2016 compared to 2015. This had a big impact in the upstream transportation and distribution scope 3 emissions as we assume 80 percent of the supply chain service spending is attributed to this category. There also has been several transportation optimization projects and part of the 2020 Transportation emission reductions goals.
Waste generated in operations	Acquisitions	8	Increase	As part of the North America distributor acquisitions, the total landfilled and incinerated waste with or without energy recovery increased that resulted in increase to the associated scope 3 emissions. Though there were several waste reduction and reuse projects, there was a net increase due to the acquisitions.
Business travel	Change in output	3	Decrease	Cummins business travel reduced in 2016 resulting in reduction in associated emissions
Employee commuting	Other: Data Estimation	0	No change	The full time employee head count stayed about the same in 2016 resulting in no change in the estimated associated emissions
Upstream leased assets	Emissions reduction activities	26	Decrease	The net emissions intensity has decreased across the regions, business and facility types resulting in a reduction in the associated emissions
Processing of sold products	Change in methodology	83	Decrease	Decrease in Engine sales in 2016 and improved methodology in calculating the processing of sold products emissions resulted in a reduction in associated emissions.
Use of sold products	Change in output	1	Decrease	Decrease in Engine sales in 2016 as compared to 2015 resulted in the decrease. Also, as part of the 2020 Sustainability goals, several fuel efficiency projects were completed working with the customers amounting to 2.9 million metric tons of CO <sub>2</sub> e.

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
				Aligning the emission factor with US EPA had a slight increase in the emissions, but couldn't offset the impacts from the decreases.
End-of-life treatment of sold products	Change in output	6	Decrease	The end of life emissions of the sold products was based on the number of engines on road in 2011. A reduction in the total number of engines on road in 2016 compared to 2011 resulted in a decrease in associated emissions
Downstream leased assets	Change in output	13	Decrease	The drop in the power solutions business in 2016 (using power systems business as proxy) resulted in the drop in the downstream leased assets scope 3 emissions

#### 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**

Cummins fuel economy teams throughout the world implemented more than 200 fuel economy projects since 2014 for our on- and off-highway customers. Collaboration among fuel economy team members, from customer engineering to account management, has contributed greatly to new project ideas and implementation. A global fuel economy forum meets monthly to share projects and best practices to fuel ideas for additional work. Projects are prioritized by the amount of potential CO2 reduction as well as the available Cummins resources to support the project. The Company is already nearly half way toward its 2020 goal, with particular success in the off-highway market where we have more than tripled original projections. As of the end of 2016, we have achieved an annual 2.9 million metric ton (MMT) reduction toward our goal of a 3.5 MMT annual reduction. On a cumulative basis, counting work done since 2014, we have saved customers \$1.9 billion and 470 million gallons of diesel fuel.

There are a number of factors that have contributed to the success of our fuel economy improvement efforts. The fuel economy percent improvement for some large

initiatives delivered results greater than originally estimated. In addition, we have exceeded our initial estimate of achieving between two and five percent improvement per project for our customers; average project fuel economy improvement is 6.7 percent.

Cummins spends approximately \$1 billion per month in goods and services with its supplier partners. This translates into thousands of tons of material, which must be mined, milled, packaged and shipped to the company's facilities. Therefore being good stewards of Cummins' spend means taking responsibility for the environmental footprint of the company's supply chain.

With that in mind, Cummins has introduced five initiatives as expectations of its supply base. Cummins currently maintains policies and procedures to support these initiatives and has also established goals that suppliers are expected to join the company in achieving.

**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	450	40%	Cummins spends approximately \$1 billion per month in goods and services with its supplier partners. This translates into thousands of tons of material, which must be mined, milled, packaged and shipped to the company's facilities. Therefore being good stewards of Cummins' spend means taking responsibility for the environmental footprint of the company's supply chain. With that in mind, Cummins has introduced five initiatives as expectations of its supply base. Cummins currently maintains policies and procedures to support these initiatives and has also established goals that suppliers are expected to join the company in achieving.

**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**

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**CC15.1**

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

<b>Name</b>	<b>Job title</b>	<b>Corresponding job category</b>
Tom Linebarger	Chairman of the Board and Chief Executive Officer Cummins	Board chairman

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**Further Information**

**CDP 2017 Climate Change 2017 Information Request**