# **Mahindra & Mahindra - Climate Change 2019**

## **C0. Introduction**

## **C0.1**

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

Our story was cast and hewn in India’s steel industry in 1945, and today, we’re a US $20 billion global federation of companies. Famous for our rugged and reliable automobiles, some also know us for our innovative IT solutions, and others for our commitment to rural prosperity.

Befitting our size, we operate in 20 key industries, providing insightful and ingenious solutions that are global in their ramifications. Our companies act as a federation, with an optimum balance of entrepreneurial independence and synergy. From Mobility to Rural Prosperity and IT, from Financial Services to Clean Energy and Business Productivity, we’re empowering enterprise everywhere. Headquartered in Mumbai, India.

We have an operational presence in over 100 countries and employ more than 200,000 people. And though we operate across vast geographies, our governing spirit of "Rise" binds us as one Mahindra, dictating that we empower people everywhere to not only chart new frontiers, but to conquer them too.

Our Purpose: We've made humanity’s innate desire to Rise our driving purpose: we will challenge conventional thinking and innovatively use all our resources to drive positive change in the lives of our stakeholders and communities across the world, to enable them to Rise. Our purpose is why we exist and why we come to work every day, infusing our lives with meaning, and galvanizing us to deliver our promise.

Challenge Conventional Thinking: In thought and deed, we ask for no limits and we accept none. Where people see problems, we see possibilities. Breakthroughs, not barriers. We dare to not only do but dare to disturb the universe itself.

Innovative Use of Our Resources: Our first instinct is not to find the right answer, but to question the question itself. As we relentlessly seek to break fresh ground and solve problems, alternative thinking and the ingenious use of resources drive us forward.

We enable our stakeholders to Rise: We work for the greater good. Advancing humankind. Connecting the world. Reducing its distances. Inhabiting our customers’ world means co-creating lasting, positive change in their lives.

For more details, please refer the following source:

http://www.mahindra.com/about-us

## **C0.2**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start date** | **End date** | **Indicate if you are providing emissions data for past reporting years** | **Select the number of past reporting years you will be providing emissions data for** |
| Row 1 | April 1 2018 | March 31 2019 | Yes | 1 year |

## **C0.3**

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

India

## **C0.4**

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

INR

## **C0.5**

### **(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

Operational control

## **C-TO0.7/C-TS0.7**

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

Light Duty Vehicles (LDV)

## **C1. Governance**

## **C1.1**

### **(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

## **C1.1a**

### **(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Board Chair | Sustainability at Mahindra is governed by a top-down approach enabling strategic vision and action plan to not just steer grassroots interventions, but also monitor its effectiveness and disclose it transparent. We have a Board Committee for Corporate Social Responsibility(CSR), which overlooks 2 councils: \* CSR Council \* Sustainability Council The CSR Committee is chaired by LADY Independent director and 2 other Independent Directors along with the Chairman, and Managing Director of Mahindra and Mahindra Ltd. are Whole-time Directors and members of the mentioned above Board Committee. The Committee, among other things, reviews and monitors the CSR as well as Sustainability activities including Climate change, Water and other sustainability initiatives |
| Board-level committee | Sustainability at Mahindra is governed by a top-down approach enabling strategic vision and action plan to not just steer grassroots interventions, but also monitor its effectiveness and disclose it transparent. We have a Board Committee for Corporate Social Responsibility(CSR), which overlooks 2 councils: \* CSR Council \* Sustainability Council The CSR Committee is chaired by LADY Independent director and 2 other Independent Directors along with the Chairman, and Managing Director of Mahindra and Mahindra Ltd. are Whole-time Directors and members of the mentioned above Board Committee. The Committee, inter alia, reviews and monitors the CSR as well as Sustainability activities including Climate change, Water, etc. Group President & CEO (Aerospace & Defence), and Group Executive Board, is Chairman of Group Sustainability Council, which approves new initiatives and monitors progress Quarterly and ensures that Sustainability is integrated into the business operations |

## **C1.1b**

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

|  |  |  |
| --- | --- | --- |
| **Frequency with which climate-related issues are a scheduled agenda item** | **Governance mechanisms into which climate-related issues are integrated** | **Please explain** |
| Scheduled – all meetings | Reviewing and guiding strategy  Reviewing and guiding major plans of action  Reviewing and guiding risk management policies  Setting performance objectives  Monitoring implementation and performance of objectives  Monitoring and overseeing progress against goals and targets for addressing climate-related issues | Sustainability as core strategic driver is systematically implemented by Business Divisions. The goal setting process follows the policy deployment methodology using balance score card approach. The strategic business priorities are part of President’s goals for the division which are then cascaded to each member of management with agreement with their reporting executives. Periodically Mahindra Business Leadership Council quarterly reviews the progress against main strategic targets. Achieving these targets is directly linked to the variable income component of the concerned team and team members. M&M is the first company in India to adopt and declare Internal Carbon Price of US$10 per ton of carbon emitted that will be utilised to fund the sustainable initiatives to reduce CO2 emissions. M&M is also the first company globally to commit to doubling the energy productivity by 2030 on a base line of 2009. Few of the examples of decisions of Sustainability council are as below: • the Sustainability Cell (SC) at business division adopted the sustainability strategy with specific targets and KPIs for the entire value chain to improve the social and environmental performance of our products. • Another example is revised resource efficiency target in 2016 for the manufacturing facilities across India – Reduction in resource consumption and emissions per Equivalent vehicle by 25% for units produced from F2016 till F2019. • Similarly targets and KPIs are developed for Sustainable Supply Chain management, in collaboration with our supply chain to ensure compliance with ESG Standards (Environmental - Social and Governance) through a three-step risk management process comprising systematic identification and implementation of business opportunities followed by on-site audits as a result from increased resource efficiency. • Examples for divisional targets in the area of climate change are: CO2-emission reductions of the M&M fleet emission, waste, and energy reduction targets for each production site as well as targets regarding external sustainability ratings and rankings such as Dow Jones Sustainability Index, Carbon Disclosure Project. |

## **C1.2**

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

|  |  |  |
| --- | --- | --- |
| **Name of the position(s) and/or committee(s)** | **Responsibility** | **Frequency of reporting to the board on climate-related issues** |
| Chief Executive Officer (CEO) | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Chief Financial Officer (CFO) | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Chief Risks Officer (CRO) | Assessing climate-related risks and opportunities | More frequently than quarterly |
| Chief Sustainability Officer (CSO) | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Risk committee | Assessing climate-related risks and opportunities | More frequently than quarterly |
| Safety, Health, Environment and Quality committee | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Sustainability committee | Assessing climate-related risks and opportunities | Quarterly |
| Risk manager | Assessing climate-related risks and opportunities | More frequently than quarterly |
| President | Both assessing and managing climate-related risks and opportunities | Half-yearly |
| Environment/ Sustainability manager | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Business unit manager | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |

## **C1.2a**

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

Sustainability at Mahindra is governed by a top-down approach enabling strategic vision and action plan to not just steer grassroots interventions, but also monitor its effectiveness and disclose it transparently. We have a Board Committee for Corporate Social Responsibility(CSR) chaired by an Lady Independent Director, other members include Exec. Chairman of M&M Ltd., 2 Independent Directors and MD of M&M Ltd. The scope of functions of the CSR Committee includes, inter alia, the formulation and recommendation to the Board for its approval and implementation, the Business Responsibility (“BR”) Policy(ies) of the Company, undertake periodical assessment of the Company’s BR performance, review the draft BR Report and recommend the same to the Board for its approval and inclusion in the Annual Report of the Company. The role of this Committee also includes recommendation of the amount of expenditure to be incurred on the CSR & Sustainability activities as per CSR & Sustainability Policy of the Company, as also to monitor the same from time to time.

The role of CSR committee also includes:

* Integrating Climate change risk management with the strategy, objectives and culture of the organisation;
* making necessary resources available for managing sustainability risk;
* establishing the amount and type of risk that may or may not be taken (risk appetite).
* determining management accountability, roles and responsibilities;

The Board CSR Committee reviews progress of CSR Council and Group Sustainability Council. The Group Sustainability Council is chaired by Group President & CEO (Aerospace & Defence) , and is a member of Group Executive board.

The role of Group Sustainability Council is:

1. Integrating Sustainability with core business strategy
2. Scaling up Sustainability actions across businesses and geographies in the group
3. Leveraging Sustainability related synergies across businesses and geographies in the group
4. Building thought Leadership in matters related to Sustainability

The Sustainability council reviews the sustainability performance on a quarterly basis. The council approves new initiatives and monitors progress on ESG parameters in the business

The Chief of manufacturing operations and Sector Sustainability champions are part of the quarterly council meetings.

Sustainability council drives these initiatives through Group Sustainability and sustainability champions and is accountable for,

1. Driving sustainability through awareness and knowledge building across the group

2. Supporting individual businesses in integrating sustainability in strategic business processes and operations

3. Making all external disclosures

In line with activities of Group Sustainability, the Sustainability champions are deployed at all divisions, plants/offices to locally drive & monitor various initiatives and collect data for sustainability reporting.

Sustainability as core strategic driver is systematically implemented by Business Divisions. The goal setting process follows the policy deployment methodology using balance score card approach. The strategic business priorities are part of President’s goals for the division which are then cascaded to each member of management with agreement with their reporting executives. Periodically Mahindra Business Leadership Council reviews the progress against main strategic targets. Achieving these targets is directly linked to the variable income component of the concerned team and team members.

M&M is the first company in India to adopt and declare Internal Carbon Price of US$10 per ton of carbon emitted that will be utilised to fund the sustainable initiatives to reduce CO2 emissions. M&M was also the first company globally to commit to doubling the energy productivity by 2030 on a base line of 2009. Few of the examples are as below:

* The Sustainability Cell(SC) at business division adopted the sustainability strategy with specific targets and KPIs for the entire value chain to improve the social and environmental performance of our products.
* Revised resource efficiency target in 2016 for the manufacturing facilities across India – Reduction in resource consumption & emissions per Equivalent vehicle by 25% for units produced from F2016 till F2019.
* Similarly targets and KPIs are developed for Sustainable Supply Chain management, in collaboration with our supply chain to ensure compliance with ESG Standards (Environmental - Social and Governance) through a three-step risk management process comprising systematic identification and implementation of business opportunities followed by on-site audits as a result from increased resource efficiency.
* Examples for divisional targets in the area of climate change are: CO2-emission reductions of the M&M fleet emission, waste, & energy reduction targets for each production site as well as targets regarding external sustainability ratings & rankings such as Dow Jones Sustainability Index, Carbon Disclosure Project.

## **C1.3**

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

Yes

## **C1.3a**

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

### **Who is entitled to benefit from these incentives?**

Board/Executive board

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

Sustainability performance is a part of the Balance Score Card of business and is drilled down to the President, CEO of Automotive Division and Farm Division have incentives linked to the company's Balanced Score Card The annual performance management system takes these into consideration, aspects of sustainability like reduction in Carbon footprint, Water footprint as per Promise 2019 commitments, Energy Productivity.

### **Who is entitled to benefit from these incentives?**

Chief Executive Officer (CEO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency target

### **Comment**

Sustainability performance is a part of the Balance Score Card of business and is drilled down to the President, CEO of Automotive Division and Farm Division have incentives linked to the company's Balanced Score Card The annual performance management system takes these into consideration, aspects of sustainability like reduction in carbon footprint, water footprint, Energy Productivity.

### **Who is entitled to benefit from these incentives?**

Chief Financial Officer (CFO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Efficiency target

### **Comment**

The President of Automotive Division and Farm Division have incentives linked to the company's Balance Score Card. Sustainability is a part of the performance management system as a Key Result Areas of the CFO. The annual performance management system takes these into consideration while assessing their performance.

### **Who is entitled to benefit from these incentives?**

Director on board

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction target

### **Comment**

The sustainability performance is a part of the Balance Score Card of business. Some part of the business strategy directly/indirectly linked to the Sustainability Performance which is linked to performance of the Directors on board. The annual performance management system takes these into consideration. The sustainability parameters include GHG emissions, Energy reduction and water reduction etc

### **Who is entitled to benefit from these incentives?**

Chief Risk Officer (CRO)

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Other, please specify (Climate Change Risk & opportunity maping)

### **Comment**

Some part of the business strategy directly/indirectly linked to the Sustainability Performance which is linked to performance of the Directors on board. The business strategy is formulated considering the organization level risks and opportunities identified in the Climate Change Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high , medium or Low) , frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility , Ir- reversibility and on their potential impact to and of the company in present and future. The annual performance management system takes these into consideration. The sustainability parameters including GHG emissions, Energy reduction and water reduction etc

### **Who is entitled to benefit from these incentives?**

Energy manager

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction project

### **Comment**

The energy managers are rewarded for emissions reduction and energy reduction. The targets are part of the performance management system as Key Result Areas which is liked to variable pay. Also energy reduction competition at Business level has additional monetary and Recognition incentives.

### **Who is entitled to benefit from these incentives?**

President

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Emissions reduction project

### **Comment**

The President of Automotive Division and Farm Division have incentives linked to the company's Balanced Scorecard. Sustainability is a part of the performance management system as a Key Result Areas of the Executive Officer. The annual performance management system takes these into consideration while assessing their performance.

### **Who is entitled to benefit from these incentives?**

Business unit manager

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Other, please specify (Sustainability KPI's(Energy, Water, etc))

### **Comment**

The Mahindra Sustainability Awards have been in place since 2012-13, which award businesses, unit/locations or employees from the group for their sustainability related performance for the previous year. The awards are divided into 4 categories: 1. The Grand Master Award is a business level award for best overall performance in all 3 bottom lines. 2. The Progressive Performer Award is a unit/location level award for outstanding improvements in sustainability related parameters w.r.t the previous year. 3. The Game Changer Award is a unit/location level award for any path-breaking initiative for improving any of the 3 bottom lines with the desired result (eg: energy/water saving, emission reduction, local sourcing, life cycle assessment). 4. The Change Agent Award is for the most proactive sustainability champion, who has managed to influence senior management to raise the sustainability bar in the organisation. We also carry out the Sustainability Awards for Suppliers which is earmarked to recognize the outstanding contribution by suppliers towards the cause of sustainability. The suppliers are assessed on parameters such as GRI indicator monitoring, availability of Sustainability Roadmaps and key initiatives undertaken. All employees contributing to the annual reporting as per the GRI framework and those involved in any special projects relating to energy efficiency are recognized by the Chairman, Sustainability Council with a certificate.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Monetary reward

### **Activity incentivized**

Energy reduction target

### **Comment**

Every year for all employees we conduct Energy saving competition. In which who saves the maximum amount of energy at their residence, we pay entire year's electricity bill to the winner of the competition. And under Rise Prize competition we encourage employees to come up with the innovative ideas of energy saving http://rise.mahindra.com/rise-prize-indias-biggest-innovation-challenge-is-here/

### **Who is entitled to benefit from these incentives?**

Environment/Sustainability manager

### **Types of incentives**

Other non-monetary reward

### **Activity incentivized**

Behavior change related indicator

### **Comment**

The Mahindra Sustainability Awards have been in place since 2012-13, which award businesses, unit/locations or employees from the group for their sustainability related performance for the previous year. The Change Agent Award is for the most proactive sustainability champion, who has managed to influence senior management to raise the sustainability bar in the organisation.

### **Who is entitled to benefit from these incentives?**

Other, please specify (Suppliers)

### **Types of incentives**

Other non-monetary reward

### **Activity incentivized**

Other, please specify (Sustainable Suppliers of the year award)

### **Comment**

We also carry out the Sustainability Awards for Suppliers which is earmarked to recognize the outstanding contribution by suppliers towards the cause of sustainability. The suppliers are assessed on parameters such as GRI indicator monitoring, availability of Sustainability Roadmaps and key initiatives undertaken. Preference is given to such suppliers adhering to award criteria in terms of business.

### **Who is entitled to benefit from these incentives?**

All employees

### **Types of incentives**

Recognition (non-monetary)

### **Activity incentivized**

Energy reduction project

### **Comment**

All employees contributing to the annual reporting as per the GRI framework and those involved in any special projects relating to energy efficiency are recognized by the Chairman, Sustainability Council with a certificate.

## **C2. Risks and opportunities**

## **C2.1**

### **(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **From (years)** | **To (years)** | **Comment** |
| Short-term | 0 | 3 | Short-term risks are risks that could impact M&M within the three-year time horizon. The most significant short-term climate change risks we observe are: Current regulations; policies in terms of environment, product etc. like BS IV norms for vehicles w.e.f. 1st Apr 2017. Emerging regulations/ policies like BS VI norms will transform the Auto industry and its products. Other short-term risks like non-availability of water at production facilities due to inadequate monsoon, reliability of supply chain and ability to operate under dynamic conditions. Our short-term strategy aims towards mitigating CO2e emissions both from a) product use and b) the value chain of our production, accounting for indirect risks and opportunities from regulations and changing consumer behaviour and adoption of direct physical risks from CC. a) To improve mitigation and meet regulations and changing consumer demand we continuously Research and Develop the Efficient vehicles to meet fleet emission targets and keep enhancing Electric vehicles portfolio also we educate the users to get best performance of our vehicles and least impact the environment. Our continuous engagement with suppliers to assess their immediate concerns and suggest ways and means to overcome/adapt to the dynamic conditions. These time horizons also apply to other business practices as well. We have Enterprise Risk Management processes which covers the climate change risks their evaluation and prioritization, etc. We monitor risk and opportunities information through various sources such as, - sector associations, - peer company benchmarking, - media monitoring |
| Medium-term | 3 | 6 | Medium Term Risks: are the major risk factors for the company in the next three to six years. We define Medium-term as being risks that are currently major concerns, and existing risks associated with current trends that are anticipated to increase. Some of the medium-term risks are as given below: • Worsening of Climate conditions • Sourcing of raw materials and energy • Product liability • Environmental risks and liabilities • Information Technology • Changes in existing and upcoming laws and regulations • Innovation and identification of major transforming technologies • Attraction and retention of talent on climate change expertise • Production process risks • Managing climate change risks These time horizons also apply to other business practices as well. We have Enterprise Risk Management processes which covers the climate change risks their evaluation and prioritization etc, we monitor risk and opportunities information through various sources such as, - sector associations, - peer company benchmarking, - media monitoring |
| Long-term | 6 | 15 | Long-term risks are risks that could impact M&M beyond the six-year time horizon. We monitor the development of these risks as part of our risk management process and include them in our overall strategic assessment. We define long-term as being risks that are currently not material, but could develop into major concerns, and existing risks associated with current trends that are anticipated to increase. The most significant long-term risks we observe are: • The accumulation of strategic moves in relevant value chains (horizontally and/or vertically) may impact our competitive position and/or increase the vulnerability of operations • Emerging technologies transforming our markets and the application of our products • Public concern over specific substances and their environmental impact, could result in major changes in our product offerings • Meeting the economic challenges associated with an ambitious sustainability strategy, while operating in markets with different levels of maturity • The continued development of digital technology, which will create risks in business continuity, privacy, legal and regulatory requirements, market and customer intelligence and supply chain security. This is especially the case given the acceleration in speed and growing complexity that characterize the process of digitization • Increased instability due to a rise in national sentiment, increased geo-political tensions and failure of national and supranational governance, having a negative impact on our business These time horizons also apply to other business practices as well. We have Enterprise Risk Management processes which covers the climate change risks their evaluation and prioritization etc, we monitor risk and opportunities information through various sources such as, - sector associations, - peer company benchmarking, - media monitoring |

## **C2.2**

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

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

## **C2.2a**

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Frequency of monitoring** | **How far into the future are risks considered?** | **Comment** |
| Row 1 | Six-monthly or more frequently | >6 years | Risk analysis covers all areas where M&M operates and all areas which company is planning to work The Company has a well-defined risk management framework and processes in place across enterprise, which is guided by Board Approved Risk management policy. The Company has a robust organisational structure for managing and reporting on risks. Risk Management Committee of the Board is authorised to monitor and review risk management plan and risk certificate. Committee is also empowered, inter alia, to review and recommend to the Board the modifications to the Risk Management Policy. It is imperative for companies to assess risk continually. Risks modelling is a complex task because of risks events dependencies and hard task of relevant data. |

## **C2.2b**

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

The business risk of climate change (CC) can affect us in multiple ways – regulatory impact on vehicle sale, physical changes which could affect the operating environment of the vehicles and others. Thus, as we operate in a climate sensitive industry, hence, we have taken major steps to identify and address the risks and-or opportunities (R/O) arising from CC. What is true about facing up to (R/O) s in the short term is also true about major long-term (R/O)s. It is certainly true for our understanding of climate (R/O). We need to consider the role of CC as R/O multiplier and the inter-dependencies between different sources of R/O’s.

At M&M, we have Chief Risk Officer (CRO), reporting to Head Strategy. The CRO is responsible for M&M's enterprise and operational risk management plan and processes including identifying and assessing corporate and asset level risks.

Organization Level Process - We has conducted an extensive exercise for identifying CC R/O. The Chief Risk Officer and the Chief Sustainability Officer are engaged through a structured process to deliberation on possible R/O from Technology-Economic-Media-Political-Legal-Environmental-Social (TEMPLES) framework. The outcome of the exercise is the CC Matrix which became the strategic input for building our ‘Promise Statement 2019’.

Asset Level Process - The R/O matrix is discussed with all the Plant Heads and their feedback is sought to further strengthen the matrix. The Plant Heads discuss and deliberate on the risks/opportunities(R/O) identified by the CRO / CSO and provide details of asset specific R/O related to climate change. The deliberation at the organization and asset level leads to a robust R/O identification process which provides tangible feedback to the organizational strategy for CC.

Methods for analysing R/O includes exposure analysis, historical analysis, and scenario analysis. These methods can be expressed qualitatively or quantitatively. Qualitative evaluations describe the types of impacts that might occur during a R/O event. The planning team, subject matter experts, stakeholders, and community members can conduct qualitative evaluations by brainstorming and discussing potential impacts. Quantitative evaluations assign values and measure the potential losses/Gain to the assets from R/O.

At the organization level the R/O’s identified in the CC Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high, medium or Low), frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility & Irreversibility and on their potential impact to & of the company in present & future.

All the R&O’s are assigned weightage based on the complete process. All the Plant Heads are again appraised on the finalized R/O matrix and are expected to formulate strategy and action plans to address the R/O at their assets in terms of 1) What actions are needed? 2) When must actions be completed? to reduce/enhance the R/O impact severity and/or probability of occurrence

What actions are needed?

Make sure that the right exit criteria are defined for each. For example, appropriate decisions, agreements, and actions resulting from a meeting would be required for exit, not merely the fact that the meeting was held.

Look for evaluation, proof, and validation of met criteria.

Include only and all stakeholders relevant to the step, action, or decisions

When must actions be completed?

Backward Planning: Evaluate the risk impact and schedule of need for the successful completion of the program and evaluate test events, design considerations, and more

Forward Planning: Determine the time needed to complete each action step and when the expected completion date should be.

Evaluate key decision points and determine when a move to a contingency plan should be taken.

Who is the responsible action owner?

What resources are required? Consider, for example, additional funding or collaboration.

How will this action reduce the probability or severity of impact?

Develop a contingency plan ("fall back, plan B") for any high R/O.

Are cues and triggers identified to activate contingency plans and R/Overviews?

Include decision point dates to move to fall back plans. The date to move must allow time to execute the contingency plan.

Evaluate the status of each action. Determine when each action is expected to be completed successfully. Integrate plans into IMS and re-evaluate the current environment for new R/O or modification to existing R/O register.

Any R/O’s which as financial impact to the tune of 10% of the company’s revenue is considered to have significant impact.

examples of managing R/O's are:

· M&M is also the 1st Indian Company to sign the EP 100 program and have taken target to doubling our energy productivity by 2030 with a baseline of FY 2008-09.

· First Indian Company to commit & declare a carbon price of $10 per ton of carbon emissions.

· M&M has also committed to Science Based Targets Initiatives

## **C2.2c**

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

|  |  |  |
| --- | --- | --- |
|  | **Relevance & inclusion** | **Please explain** |
| Current regulation | Relevant, always included | We consider the role of climate change as risk multiplier and the inter-dependencies between different sources of risk. We have a well-defined risk management framework and processes in place across the enterprise, which is guided by the Board Approved Risk management policy. Chief Risk Officer reports to the President (Strategy). He is responsible for identifying and assessing corporate and asset-level risks. New regulations and customer demands are monitored and inputs from all functions are received via designated Risk officers monthly. Quarterly Corporate Risk Management team filters and prioritizes basis structured policies. The report is presented to authorized Risk Management Committee of Board which monitors, reviews and takes decisions for the adoption and mitigation strategy. It directs the implementation via a robust Risk management process, which has been embedded across all functions and revolves around the goals and objectives of the organization. Business decisions are reached after comprehensive analyses of Climate Change R&O’s considering Long term goals and objectives of the organization. At the organization level the risks and opportunities identified in the Climate Change Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high, medium or low) , frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility and Irreversibility and on their potential impact to and of the company in present and future. The industry is subject to regulations and legislation related to environmental concerns. Changes in Import, export, sales and excise duties also affect the prices of the vehicles which will impact the sales of company and industry. Example: BS-IV regulations applicable w.e.f. 1st Apr 2017. M&M is sourcing open-access power from a thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. valid till 31st Mar 2020. etc. These current regulations can have an impact on the sales and operating costs of the company. Regulatory compliance is non-negotiable for M&M and hence these categories of risks are always included. |
| Emerging regulation | Relevant, always included | We consider the role of climate change as risk multiplier and the inter-dependencies between different sources of risk. We have a well-defined risk management framework and processes in place across the enterprise, which is guided by the Board Approved Risk management policy. Chief Risk Officer reports to the President (Strategy). He is responsible for identifying and assessing corporate and asset-level risks. New regulations and customer demands are monitored and inputs from all functions are received via designated Risk officers monthly. Quarterly Corporate Risk Management team filters and prioritizes basis structured policies. The report is presented to authorized Risk Management Committee of Board which monitors, reviews and takes decisions for the adoption and mitigation strategy. It directs the implementation via a robust Risk management process, which has been embedded across all functions and revolves around the goals and objectives of the organization. Business decisions are reached after comprehensive analyses of Climate Change R&O’s considering Long term goals and objectives of the organization. At the organization level the risks and opportunities identified in the Climate Change Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high, medium or low) , frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility and Ir-reversibility and on their potential impact to and of the company in present and future. The industry is subject to regulations and legislation's related to environmental concerns. Changes in emission norms, for example, BS IV to BS VI by Apr 2020, can have an impact on the sales of company and industry as a whole. Regulatory compliance is non-negotiable for M&M and hence this category of risks is always included. We are on a panel of the Society of Manufacturers of Electric Vehicles (SMEV) to drive Electric mobility adoptions in India and are helping the government to come up with EV policy of the nation. |
| Technology | Relevant, sometimes included | We have a well-defined risk management framework and processes in place across the enterprise, which is guided by the Board Approved Risk management policy. Chief Risk Officer reports to the President (Strategy). He is responsible for identifying and assessing corporate and asset-level risks. New regulations and customer demands are monitored and inputs from all functions are received via designated Risk officers monthly. Quarterly Corporate Risk Management team filters and prioritizes basis structured policies. The report is presented to authorized Risk Management Committee of Board which monitors, reviews and takes decisions for the adoption and mitigation strategy. It directs the implementation via a robust Risk management process, which has been embedded across all functions and revolves around the goals and objectives of the organization. Business decisions are reached after comprehensive analyses of Climate Change RO’s considering Long term goals and objectives of the organization. At the organization level the risks and opportunities identified in the Climate Change Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high, medium or low) , frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility and Irreversibility and on their potential impact to and of the company in present and future. By offering sustainable individual mobility technologies we mitigate climate-related physical risks and develops business opportunities. We are proceeding with the following strategy: 1. Further, increase the efficiency of conventional cars. 2. Further, develop Plugin hybrids and roll out in a broad range of models. 3. Focus on e-mobility and develop hydrogen solutions for the long run 4. Further, develop sustainable mobility services considering consumers show an increasing acceptance of new technologies and service models, and point to the possibility of a world where car ownership is no longer seen as a sacred right or absolute necessity for life in the 21st century. |
| Legal | Relevant, always included | What is true about facing up to risk in the short term is also true about major long term risks. It is certainly true for our understanding of climate risk. We consider the role of climate change as risk multiplier and the inter-dependencies between different sources of risk. We have a well-defined risk management framework and processes in place across enterprise, which is guided by Board Approved Risk management policy. Chief Risk Officer reports to President (Strategy). He is responsible for identifying and assessing corporate and asset level risks. New regulations and customer demands are monitored and inputs from all functions are received via designated Risk officers on monthly basis. Quarterly Corporate Risk Management team filters and prioritizes basis structured policies. The report is presented to authorized Risk Management Committee of Board which monitors, reviews and takes decisions for the adoption and mitigation strategy. It directs the implementation via robust Risk management process, which has been embedded across all functions and revolve around goals and objectives of organization. Business decisions are reached after comprehensive analyses of Climate Change R&O’s considering Long term goals and objectives of organization. At the organization level the risks and opportunities identified in the Climate Change Matrix are prioritized based on Direction (positive or Adverse), Magnitude (high, medium or Low) , frequency of occurrence, nature of severity, how quickly they may materialize, Reversibility and Irreversibility and on their potential impact to and of the company in present and future. The industry is subject to regulations and legislations related to environmental concerns. Legal Compliance are always to be adhered as per company policy, however if any, deviation is required than, company has plan to first comply with requirements and then make appeal to relevant stakeholders for clarification and influence to change by providing facts on the subject matter. eg: Maharashtra RE policy 2015, where in wind mill was installed but not allowed for self-use with in state, so RPO was complied by procuring REC's and till policy amendment in Dec 2016 our wind mill was not delivering power to our plants. and started delivering power post amendment of Maharashtra RE policy. |
| Market | Relevant, always included | The second major risk factor is around the demand for cars, forecasting the types of vehicles and the specific demand in individual geographies. We think India is proving to be a very interesting laboratory in this sense, as a growing middle class is starting to buy cars and the industry is looking for ways to satisfy that demand. The difficulty in this game is that consumer tastes are fickle. Tata’s Nano had struggled in the marketplace despite its zippy looks and having been designed specifically for the Indian market. GM had reduced its operations in India. These are both great examples of shifts in demand that are unpredictable and difficult for companies to again respond to as rapidly as the demand is shifting between different types of vehicles. By offering sustainable individual mobility technologies we mitigate climate-related physical risks and develops business opportunities. We are proceeding with the following strategy: 1. Further, increase the efficiency of conventional cars. 2. Further, develop Plugin hybrids and roll out in a broad range of models. 3. Focus on e-mobility and develop hydrogen solutions for the long run 4. Further, develop sustainable mobility services. |
| Reputation | Relevant, always included | What is true about facing up to risk in the short term is also true about major long term risks. It is certainly true for our understanding of climate risk. We need to consider the role of climate change as risk multiplier and the inter-dependencies between different sources of risk. We do sensitivity analysis on market and strategic business risks that include waste and climate risks. We do stress testing on supplier reliability, labour availability and adequacy, dealer capacity, brand promises, customer service, and recall management. As part of the strategy planning process, we develop scenarios using critical uncertainties to understand the plausible future and what corresponding implications might be. For each scenario, we identify risk and opportunities that feed into the group’s strategy direction. Then, we stress test alternate scenarios. We monitor and review all triggers for alternate scenarios, such as interest rates, competition, regulations, trade rules, on a continuous basis, and we carry out the scenario planning exercise every year, updating it periodically. We are tracking, analyzing, and stress testing the impact risks that can have adversely threaten the organisation’s brand or reputation, or threaten its existence at Group level. Every 2 years we hire Millward Brown an external agency to assess our progress on all Brand Parameters. For the reporting period our brand was valued assessed at US$ 2.6 billion. |
| Acute physical | Relevant, always included | What is true about facing up to risk in the short term is also true about major long-term risks. It is certainly true for our understanding of climate risk. We need to consider the role of climate change as risk multiplier and the inter-dependencies between different sources of risk. We do sensitivity analysis on market and strategic business risks that include waster and climate risks. We do stress testing on supplier reliability, labour availability and adequacy, dealer capacity, brand promises, customer service, and recall management. As part of the strategy planning process, we develop scenarios using critical uncertainties to understand the plausible future and what corresponding implications might be. For each scenario, we identify risk and opportunities that feed into the group’s strategy direction. Then, we stress test alternate scenarios. We monitor and review all triggers for alternate scenarios, such as interest rates, competition, regulations, trade rules, on a continuous basis, and we carry out the scenario planning exercise every year, updating it every six months. We are tracking, analyzing, and stress testing the impact risks that can have adversely threaten the organisation’s brand or reputation or threaten its existence at Group level. There is direct correlation of changing weather pattern to sales of tractors. Sales of tractors reduces sharply with reduction in rainfall. This was evident in F16 when the domestic tractor sale was 483,000 no. as compared to 551,000 no. in F15. Also, Some of the areas where M&M operates such as Igatpuri, Nashik, were water supply was reduced during drought conditions 5-6 years ago this had prompted us to adopt rain water harvesting and other process improvements to reduce water dependency, now we have almost 200-225 days of water harvested each year and also our Igatpuri plant was certified water positive plant. |
| Chronic physical | Relevant, always included | Various Climate models analysis by experts indicate North India and East India is prone to flooding hazards if climate change to the tune of +2deg Celsius happens and most of the facilities of M&M are in low to moderate damage zones as per Wind and Vulnerability Atlas of India , hence risk is relevant but sometimes included for strategic work ahead and also serves as the input for new facility setup or selecting the suppliers in India. |
| Upstream | Relevant, sometimes included | Due to natural calamities at areas of Tier 2 suppliers may result in stoppage, delays in material delivery to Tier I supplier, disasters, supplier financial stress, suppliers’ union issues are some of the external factors that may lead to supply chain disruptions. The occurrence of any of these events in the major markets from which our company purchases materials, parts, components and supplies for the manufacture of its products or in which its products are produced, distributed or sold, may result in disruptions and delays in the production. However, the frequency of Supply Chain disruptions in last three years have been minimal thus not impacted our business. Raw material Price: As a result of increase in raw material prices – mainly metal and energy prices – the volatility in the sector has been on a rise in past few years though the overall volatility is still considered Medium to Low. |
| Downstream | Relevant, sometimes included | By 2020, India's population is expected to increase by an estimated 200 million, piling further pressure on the transport infrastructure. OEMs like us are therefore, likely to increase their offerings in terms of alternate fuel variants (CNG, LPG and also hybrids) and advanced safety features across segments. Indian auto industry is expected to be short of 300,000 skilled personnel by 2020 across functions. With logistics infrastructure lagging behind the pace of the auto industry's expansion, OEMs like us will need to consider multi-plant/dealer strategies. We will have to develop cluster dealerships to be closer to regions with strong demand potential and for better control of the supply chain. Our dealers to focus on managing their capital agenda, skill development and shifting revenue contribution of high-margin allied services. |

## **C2.2d**

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

The business risk of climate change (CC) can affect us in multiple ways – regulatory impact on vehicle sale, physical changes which could affect the operating environment of the vehicles and others. Thus, as we operate in a climate sensitive industry, hence, we have taken major steps to identify and address the risks and-or opportunities (R/O) arising from CC. *Any R/O’s with financial impact to the tune of 10% of the company’s revenue is considered to have significant impact.*

The Company has a structured training module on risk management principles that are used to train all leadership teams throughout the organization. In addition to this module, which is delivered periodically, the Office of Risk Management (ORM) conducts specialized seminars with internal manufacturers and suppliers. The ORM also participates in sustainability related risk workshops for all business verticals and pairs businesses with risk mentors to further instil risk management principles in those businesses to help guide them through the risk management process. The Chief Risk Officer and the ORM are part of the Group Strategy Office or Corporate.

At Mahindra, the risk management process is an integral part of the management, embedded in the culture and practices, and tailored to the business processes. The attributes considered by the ISO 31000 that represent a high level of performance in managing risk are present and can be well demonstrated in the processes followed. A lot of emphasis is placed on continuous improvement in risk management through modification of processes and systems. At Mahindra, designated employees fully accept accountability, are appropriately skilled and have adequate resources to check controls, monitor risks, communicate effectively about the risks. All decision making involves consideration of risks, be it project level risks, supply chain, long term strategy or setting up and establishing controls. As with all processes at Mahindra, our Enterprise Risk Management Program strives for thoroughness, breadth, and integrity.

Several measures are in place to continuously improve Mahindra’s risk management process. The policy is reviewed annually with all relevant stakeholders. Regular feedback on the risk management process is structured into the pairing of risk mentors from the Office of Risk Management with risk managers/owners of respective businesses. Our risk templates are reviewed annually by the Group Strategy Office. The CFO annually reviews and updates the respective risk scales that are used. The Internal Auditor and Legal Counsel are part of the Corporate Risk Council of the company. A risk-based approach drives Internal Audit, System and Technology Audit and Compliance Audit. The Council oversees the existence, adequacy, and effectiveness of the risk management process and policy to the Risk Management Committee appointed by the Board, periodically. Further, the Council reviews the Quarterly Risk Presentation & Quarterly Risk Certificate to be placed before the Board at every meeting.

At Mahindra, risk management is linked to the annual goal sheets of senior executives, primarily CFOs.

For line managers who are responsible for implementing mitigation plans of identified risks and opportunities have financial incentives linked to the successful implementation of the plan in their goal sheets, as these action plans are dovetailed into their KRAs which determine their performance bonus/ incentives and annual increments.

eg: BS IV to BS VI emission norms w.e.f 1st Apr’20 for vehicles

Our CRO had identified emerging BS VI emission norms as potential significant risk for Automotive division, and specific cascading asset level R/O's were also mapped, and impacts Quantified using historical sales data & scenario analysis jointly with the plants heads inputs for the existing offerings of the company.

Under current scenario migration from BS IV to BS VI is uphill task and would require collaborative efforts to meet the BSVI norms for new offering by Apr’2020.

A task force team was prepared, clear roles, responsibilities & ownership of the gateways defined, with schedule of monitoring including the lead and lag indicators deadlines as per Critical success factors for transition. Vendor development strategy & Schedule is planned.

As a fall-back plan, migration to BS VI with technology acquisitions for select offerings is planned with predefined target dates.

## **C2.3**

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

Yes

## **C2.3a**

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

### **Identifier**

Risk 1

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

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

### **Type of financial impact**

Reduced demand for products and services

### **Company- specific description**

The customer’s choice of fuel type has been essentially governed by the operating economics, which in turn is driven by (i) Cost differential between petrol and diesel fuel, and (ii) Higher taxation on a certain class of Diesel vehicles, arising from concerns over clean air. Since the deregulation of fuel prices in October 2014, the gap between petrol and diesel process has narrowed significantly. This narrowing price gap, in combination with higher taxes on certain categories of diesel vehicles, has led to a decrease in demand for diesel-fueled passenger vehicles. which have declined from 47 percent of total sales in 2012-13 to 19 percent in 2018-19. The government has announced the implementation of BS-VI emission norms from 1st April 2020. With this, the concern over the cleanliness of diesel emission will go away, but there is a cost differential involved in meeting BS-VI emission norms for Petrol and Diesel vehicles, with Diesel emission being higher. This differential is likely to put pricing pressure on the diesel-fueled vehicles with BS-VI implementation. Mahindra being predominantly diesel vehicle producing company, a shift towards gasoline-powered vehicles could lead to a loss of volume and market share. The likely introduction of new emission norms (TREM IV) for tractors will call for additional investments by OEMs, increasing the material costs for tractors. This cost of the emission norms/other legislative changes will have to be passed on to the value chain and yet remain competitive will be the other challenge for our industry as a whole.

### **Time horizon**

Short-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium-high

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

### **Potential financial impact figure (currency)**

<Not Applicable>

### **Potential financial impact figure – minimum (currency)**

3535292000

### **Potential financial impact figure – maximum (currency)**

35352920000

### **Explanation of financial impact figure**

"Higher taxation on diesel vehicles is affecting our sales, which have declined from 47 % of total sales in 2012-13 to 19 % in 2018-19," With BS-VI emission norms slated to come into effect from April 1, 2020, prices of both petrol and diesel vehicles are set to go up. this may result in a reduction in Auto Sales Revenue. However, pricing pressure on diesel vehicles is expected to be higher which could further impact sales of such vehicles in the domestic market. The likely introduction of new emission norms (TREM IV) for tractors will call for additional investments by OEMs like us, increasing the material costs for tractors. The financial impact is estimated to be to the range of INR 3,535,292,000/- @1% to INR 35,352,920,000/- @10% based on the internal analysis of the various factors linked to the above risk. 1% Reduction in Revenue at current level(FY19 Automotive divisions) = INR 3,535,292,000 and 10% Reduction =INR 35,352,920,000.

### **Management method**

The company is in the process of developing and introducing petrol engines across most of its products and segments. Further, there are aggressive time and cost targets for meeting BS-VI emission for diesel engines. Progress on the development of Petrol power-trains as well as the development of BS-VI emission technologies within the time and cost targets are being done. The Company is actively pursuing a strategy to develop and introduce Petrol engines across the product range. The Company has a strong product pipeline to be rolled out in the near future and is continuously investing in new product development, technology upgrades and increasing its distribution network. M&M sold 2,33,915 utility vehicles in 2017-18, a rise of 5.1 percent as compared with 2016-17. The company's Farm equipment sector is also working towards developing innovative solutions to keep the cost increase for tractors to a minimum considering the likely introduction of new emission norms (TREM IV) for tractors will call for additional investments by OEMs like us, increasing the material costs for tractors. We are also working towards building cost-effective BS-VI compliant solutions for our diesel engine portfolio. We have a strong product pipeline to be rolled out in the near future and is continuously investing in new product development, technology upgrades and increasing its distribution network

### **Cost of management**

26430000000

### **Comment**

The cost of management involves system up gradation cost. technology, talent acquisition cost, Customer awareness and making AFFORDABLE offerings for the customers. Mahindra & Mahindra Ltd. Integrated Annual Report 2018-19, https://www.mahindra.com/resources/investor-reports/FY19/ Annual%20Reports/Mahindra-Mahindra-Annual-report-2018-19.pdf (Pages: 140-141) Please refer below risks : Choice of Fuel and new emission norms & Environment and Alternate fuels

### **Identifier**

Risk 2

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

Technology: Substitution of existing products and services with lower emissions options

### **Type of financial impact**

Research and development (R&D) expenditures in new and alternative technologies

### **Company- specific description**

Risk of growing concerns over air quality, need to reduce dependence on fossil fuels, and push from Governments for large scale adoption of Electric Vehicles especially for intra-city uses may impact our business in a larger way. Also the competition in Electric vehicle space in expected to be intense

### **Time horizon**

Long-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium-low

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

### **Potential financial impact figure (currency)**

<Not Applicable>

### **Potential financial impact figure – minimum (currency)**

3535292000

### **Potential financial impact figure – maximum (currency)**

35352920000

### **Explanation of financial impact figure**

Growing concerns over air pollution, road safety, sustainability, and urban congestion- among consumers and society at large, are driving the regulations and policies for motor vehicles and urban development which is impacting the choice of fuel, ownership patterns and will have a significant impact on the future of the industry. The government has announced a plan for migration to BS-VI emission norms for all vehicles from April 2020. Similarly, the plan for migration to new safety norms under Bharat New Vehicle Safety Assessment Program (BNVSAP) by Financial Year2019 for new vehicles and Financial Year 2020 for existing vehicles. This poses a risk of reduced or no demand for current vehicles. 1% Reduction in Revenue at current level(FY19 Automotive divisions) = INR 3,535,292,000 and 10% Reduction =INR 35,352,920,000/-

### **Management method**

With the aim to remain competitive in the market and sustain leadership, M&M continues to invest in Electric Vehicles in India, and actively pursuing the development of the EV market, products, and technology. The company's EV portfolio comprises of the e2o+electric car, eVerito, and Supro EV Cargo Van and e-alfa. Mahindra is also developing EV version of compact SUV KUV100, also investing in next-generation EV technologies, high-efficiency drive train motors, and power-trains. We are also working with Government, both at central and state level on this aspect.

### **Cost of management**

5000000000

### **Comment**

The cost of management is associated with transition R&D efforts required, Technology acquisitions, Talent pool development, Customer awareness and making AFFORDABLE offerings for the customers.

### **Identifier**

Risk 3

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Physical risk

### **Primary climate-related risk driver**

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

### **Type of financial impact**

Reduced demand for products and services

### **Company- specific description**

A normal monsoon is important for both agriculture as well as the rural economy and sentiment at large. The tractor business in particular and the automotive business to some degree, run the risk of a drop in demand, in case of a significant variation in the monsoon. In addition, an untimely monsoon and uneven spread have the potential of adversely impacting the business as observed in the Financial Year 2015 and Financial Year 2016. Direct correlation of changing weather patterns to sales of tractors. Sales of tractors reduce sharply with a reduction in rainfall. This was evident in F16 when the domestic tractor sale was 483,000 no. as compared to 551,000 no. in F15. In FY 18, due to normal monsoons, tractor sales increased by 20.7%. Hence less rainfall is a significant risk to FES business. 1% reduction in revenue of FES is equivalent to INR 157,61,81,000. Steps were taken to reduce impact - Promoting drip irrigation through its micro-irrigation systems, 300 Samriddhi Centers across India to provide all Agri inputs such as tractors, implements, seeds, crop care products, irrigation solutions, and Agri knowledge dissemination services like Soil Testing, Agri Counselling, Result and Method Demos, Agri Institution's Visit and Custom Hiring for farm implements for increased productivity. Similar water conservation projects being implemented for Auto Division to reduce dependability on rainfall for plant operations

### **Time horizon**

Short-term

### **Likelihood**

About as likely as not

### **Magnitude of impact**

Medium-low

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

### **Potential financial impact figure (currency)**

<Not Applicable>

### **Potential financial impact figure – minimum (currency)**

1687465000

### **Potential financial impact figure – maximum (currency)**

16874650000

### **Explanation of financial impact figure**

Change in rainfall patterns: Direct correlation of changing weather patterns to sales of tractors. Sales of tractors reduce sharply with the reduction in rainfall. This was evident in F16 when the domestic tractor sale was 483,000 no. as compared to 551,000 no. in F15. In FY 18, due to normal monsoons, tractor sales increased by 20.7%. Hence less rainfall is a significant risk to FES business. At current levels, 1% reduction in revenue of FES is equivalent to INR 1,687,465,000/- and @10% Redcution = INR1,687,465,0000/-

### **Management method**

Steps were taken to reduce impact - Promoting drip irrigation through its micro-irrigation systems, 300 Samriddhi Centers across India to provide all Agri inputs such as tractors, implements, seeds, crop care products, irrigation solutions, and Agri-knowledge dissemination services like Soil Testing, Agri Counselling, Result and Method Demos, Agri Institution's Visit and Custom Hiring for farm implements for increasing the productivity. M&M, at all our locations, has implemented various projects for reducing freshwater intake by building check dams, using water-efficient equipment, conducting water audits creating awareness & training, recycling effluent treated water in gardening after RO treatment, harvesting rainwater. Considering the availability of water for the community, we are working on watershed management projects. With the success of our Damoh Project, M&M ventured with National Bank for Agriculture and Rural Development (NABARD) on Watershed management aspects in the Hatta Block of Damoh. With coverage of 4815 ha of the area, this project is going to impact 13 villages while the Wardha Water Project is taken up in 35 Villages at Aurangabad. We have prepared a water security strategy to reduce dependency on external water sources & reduce our water footprints by 25%. This commitment is part of our business promise 2019. Similar water conservation projects being implemented for Auto Division to reduce dependency on rainfall.

### **Cost of management**

26430000000

### **Comment**

The cost of management is associated with transition R&D efforts required, Technology acquisitions, Talent pool development and making offerings understandable by end-users and further enhancing the offerings by innovating using customer feedback.

### **Identifier**

Risk 4

### **Where in the value chain does the risk driver occur?**

Supply chain

### **Risk type**

Transition risk

### **Primary climate-related risk driver**

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

### **Type of financial impact**

Capital investments in technology development

### **Company- specific description**

With Electric Vehicles the drive train components will reduce and thus suppliers providing components that would not be required will be badly affected. While new opportunities would emerge in EV parts such as a battery, motors, controllers and microprocessors

### **Time horizon**

Long-term

### **Likelihood**

More likely than not

### **Magnitude of impact**

Medium-high

### **Are you able to provide a potential financial impact figure?**

Yes, an estimated range

### **Potential financial impact figure (currency)**

<Not Applicable>

### **Potential financial impact figure – minimum (currency)**

27095000000

### **Potential financial impact figure – maximum (currency)**

54190000000

### **Explanation of financial impact figure**

it is estimated that at least 10-20% of the drive train of conventional vehicles will not be required hence suppliers revenue will be impacted badly. Based on the internal assessments and the spend analysis considering various scenarios it is estimated that impact shall be in the range of

### **Management method**

Electric vehicle transformation to hit hard auto part suppliers, small players. The reason lies in the fact that Electric vehicle is relatively simpler to build with only 20 moving parts against around 2,000 in an ICE (internal combustion engine) vehicle. From the perspective of component suppliers, large players are likely to adapt to the dramatic changes, however, small firms could be hit the hardest by this disruption. The existing suppliers will not only have to deal with the transition but also face severe competition from the new entrants in the industry such as technology companies and battery producers. Moreover, there will be significant changes in component manufacturers' portfolios with existing powertrain-related suppliers slated to lose market share in an all-EV scenario, while new opportunities would emerge in EV parts such as a battery, motors, controllers and microprocessors We plan to develop supplier affected with reduced component demand for the other parts of the vehicle and religiously follow the transition plan and jointly transit to the low carbon vehicle production. Investing in next-generation EV technologies including 380V powertrain, high-efficiency drivetrain motors and local manufacturing of batteries

### **Cost of management**

500000000

### **Comment**

The cost of management will be mainly for training and co-creation efforts for electric vehicle development. Investing in next-generation EV technologies including 380V powertrain, high-efficiency drivetrain motors and local manufacturing of batteries

## **C2.4**

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

Yes

## **C2.4a**

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

### **Identifier**

Opp1

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Development and/or expansion of low emission goods and services

### **Type of financial impact**

Increased revenue through demand for lower emissions products and services

*1. Faster Adoption and Manufacturing of Hybrid and Electric Vehicles, or FAME 2 scheme aims to boost electric mobility and increase the number of electric vehicles in commercial fleets. 2. Target: The outlay of ₹10,000 crore has been made for three years till 2022 for FAME 2 scheme. 3. The government will offer the incentives for electric buses, three-wheelers and four-wheelers to be used for commercial purposes. 4. Plug-in hybrid vehicles and those with a sizeable lithium-ion battery and electric motor will also be included in the scheme and fiscal support offered depending on the size of the battery.*

### **Company-specific description**

The government of India’s scheme of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles, or FAME 2 scheme aims to boost electric mobility and increase the number of electric vehicles in commercial fleets till 2022 The government will offer incentives for electric buses, three-wheelers, and four-wheelers to be used for commercial purposes. For this, infrastructure is set up. This is going to increase the demand for M&M’s electric vehicles. M&M Limited is already in the business of manufacturing of Electric Vehicles. The Sales volume is picking up every year. The sales volume for electric vehicles was 10,276 in F19, 4026 nos in F18 as against 1,021 nos in F17. M&M’s automotive sector’s revenue in F19 was INR 353,529,200,000/-. 1% increase in revenue is equivalent to INR 35,35,292,000/-.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium-high

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

3535292000

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

For this, infrastructure is set up. This is going to increase the demand for M&M’s electric vehicles. M&M’s automotive sector’s revenue in F19 was INR 353,529,200,000/-. 1% increase in revenue is equivalent to INR 35,35,292,000/-. M&M Limited is already in the business of manufacturing of Electric Vehicles. The Sales volume is picking up every year. The Sales volume is picking up every year. Sales volume for electric vehicles F18 (4026 Nos) compared to F17(1021 Nos). Further Research and Development is being done to increase EV portfolio and enhance the product features including product efficiency i.e. more kilometre run on a single battery charge, fast charging, product design etc. In FY 18, E-Alfa mini electric rickshaw was launched. In FY19 Treo - Electric Three-wheeler was launched.

### **Strategy to realize opportunity**

The company plans to collaborate for enhancing customer awareness, promote domestic manufacturing, promote new business models, conduct R&D for EVs and components, consider new business models to promote EVs considering the Governments’ thrust on adopting EVs, and sustained effort by the Company in working with various stakeholders, especially fleet operators The company understands that Electric vehicles right now have not reached a point where we can afford to spend that much money on an electric-only platform. M&M is not betting in a big way on personal use of EVs, in the short-run plan to convert current vehicles to EVs. In FY18, E-Alfa mini electric rickshaw was launched followed by Treo - Electric Three-wheeler in FY19. We will be launching e-KUV in about six months’ time and one year after that plan to launch electric XUV300; post that, we are looking at doing platform ground up for electric vehicles." when XUV300-electric is launched there perhaps will have two options...one for shared mobility which will be a low-cost option and one option for personal mobility. Presently M&M is trying to see how its alliance with Ford and the one with Ssangyong can be leveraged fully to help each of the three associations to reduce product development costs and get a larger economy of scale for purchasing by having a common platform that the companies share across. M&M is also discussing with Central & State Govt. for incentivizing the EV owners by way of reduced taxes & duties

### **Cost to realize opportunity**

5000000000

### **Comment**

Cost of management is associated with transition R&D efforts required, Technology acquisitions, Talent pool development, Investing in next-generation EV technologies including 380V powertrain, high-efficiency drivetrain motors and local manufacturing of batteries setting up infrastructure for manufacturing the offerings an most importantly enhancing portfolio of product and Services AFFORDABLE for the customers. The cost of management will be mainly for training and co-creation efforts for electric vehicle development.

### **Identifier**

Opp2

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Energy source

### **Primary climate-related opportunity driver**

Use of lower-emission sources of energy

### **Type of financial impact**

Reduced operational costs (e.g., through use of lowest cost abatement)

### **Company-specific description**

As a part of regular compliance, M&M limited is required to purchase/substitute a portion of its power consumption through renewable sources. This is also known as renewable purchase obligation for the Company. Till F16, this requirement was met majorly by purchase REC (Renewable Energy Certificates) from a third party to meet the compliance. However, M&M Limited saw an opportunity in producing its own renewable energy for captive consumption and set up will mills and solar plants. This has resulted in reduced capital costs as unlike coal based electricity, there is no recurring cost of production of electricity from solar panels and wind mills.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Low

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

400000000

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

M&M is sourcing open access power from thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. Government of India had set ambitious target of setting up 175GW of RE power by 2022. In line with that RPO obligations are framed to promote RE power. In F18 the company had set up the 2.1MW wind mill to meet its Non solar RPO, which was in F18 done by procurement REC, from 1st April 2018 onwards wind mills have started delivering power to M&M plants at Kandivali and Nagpur, thus complying RPO obligations and resulting in reduction in Operating cost to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. Thus Reduced companies exposure to future fossil fuel price increases. INR 4,00,000,000/- is arrived by calculating the number of units Generated from windmill p.a. x Power cost + RPO compliance cost avoided.

### **Strategy to realize opportunity**

M&M is sourcing open access power from thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. Government of India had set ambitious target of setting up 175GW of RE power by 2022. In line with that RPO obligations are framed to promote RE power. In F17 RPO was complied by procuring Renewable Energy Certificates(REC's) from open market. In F18 the company set up the 2.1MW wind mill at Aurangabad to meet its Non solar RPO, from 1st May 2018 on wards Wind mills have started delivering power to M&M plants. thus, complying RPO and resulting in a reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. This will also reduce dependency on the availability of Grid power. We have formed a strategic road map to increase RE power consumption to 10% of the total requirement by 2020.

### **Cost to realize opportunity**

137000000

### **Comment**

cost to release opportunity is associated with the CAPEX for procurement and setting up RE source and monitoring systems required for the project

### **Identifier**

Opp3

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Resource efficiency

### **Primary climate-related opportunity driver**

Move to more efficient buildings

### **Type of financial impact**

Increased value of fixed assets (e.g., highly rated energy-efficient buildings)

### **Company-specific description**

Various Climate models analysis by experts indicate North India and East India is prone to flooding hazards of climate change to the tune of +2deg Celsius happens and most of the facilities of M&M are in low to moderate damage zones as per Wind and Vulnerability Atlas of India, hence risk is relevant but sometimes included for strategic work ahead and also serves as the input for new facility setup and supplier selection in India. As a policy decision in 2016, all of our exiting office buildings are being converted to Green buildings and all new buildings to be by default designed as Green buildings as per IGBC Green building criteria.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Medium-low

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

100000000

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

M&M started its green building journey by new Green building in 2014, and since then has converted Nine existing office buildings to Green buildings (Platinum /Gold) as per IGBC green building criteria for the existing buildings. In the reporting period, Nagpur and Corporate center office buildings were converted to Platinum ratted green building as per strategic rood map planned to convert all office building to Green buildings. Green buildings conversion not only reduces the operating costs but also: 1) Reduce dependencies on the scares resources 2) Energy and Water efficient usage, thus reduced the carbon footprint 3) Reduced Waste generated - thus reduced cost and space required for Waste disposal and reduced compliance headaches. 4) Enhances Brand Reputation 5) Full fill strategic road map commitments, thus adding to Sustainable development of the organisation. With above efficiency improvements avg Rs 40-50 Lac p.a./building can be saved with a payback of 2-3 years

### **Strategy to realize opportunity**

M&M started its green building journey by converting its first office building in 2014 and since then has converted Nine exiting office buildings to Green buildings (Platinum / Gold Ratted) as per IGBC green building criteria for the existing buildings. In the reporting period, Farm divisions Nagpur and Auto Divison Zaheerbad office buildings were converted to Platinum ratted green building as per strategic rood map planned to convert all office building to Green buildings adding to Sustainable development of the organization. We have also initiated the assessments of the other office buildings at Nashik Tool & die plant, Swaraj Mohali plant-1. In a phased manner, all Office buildings to be converted to Green buildings and we are also encouraging our suppliers to adopt Green building criteria and explore for its deployments at their suppliers also. Under the Sustainability policy, all new facilities of M&M are to be designed as per Green Factory/ Building criteria. Also, we are spreading awareness through IGBC forums wherein we are sharing our Green Building/Journey experiences.

### **Cost to realize opportunity**

200000000

### **Comment**

Recently, Mahindra Igatpuri Pentwin guest house has become the first facility across the Mahindra Group to have been rated as a green platinum Green Home(Existing). Another ‘green’ feather in our cap!

## **C2.5**

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

|  |  |  |
| --- | --- | --- |
|  | **Impact** | **Description** |
| Products and services | Impacted for some suppliers, facilities, or product lines | Upon implementation of BS IV norms on 1st April 2017, Mahindra n Mahindra Limited was left with an inventory of around 18,000 BS-III vehicles, ranging from two-wheeler to trucks. Hence forced to give flash sales giving rigorous model wise discounts, M&M could clear more than half of its BS-III inventory by the deadline and converted the rest lot to BS IV and sold in F18. So, the potential INR 2000000000/- financial impact was avoided and all BS III vehicle stock was cleared in F18 |
| Supply chain and/or value chain | Impacted for some suppliers, facilities, or product lines | Upon implementation of BS IV norms on 1st April 2017, M&M Limited was left with an inventory of BS-III vehicles, ranging from two-wheeler to trucks. So were the supplier and dealers affected due to stocks, hence conversion of BSIII to BS IV vehicle was adopted and some used as spares for the exiting BS III vehicles sold till 31st Mar 2017. Thus, Financial implication to the tune of INR 80,00,000/- to the Suppliers and dealers was avoided. |
| Adaptation and mitigation activities | Impacted for some suppliers, facilities, or product lines | Upon implementation of BS IV norms on 1st April 2017, M&M Limited was left with an inventory of around 18,000 BS-III vehicles, ranging from two-wheeler to trucks. Hence forced to give flash sales giving rigorous model wise discounts, M&M could clear more than half of its BS-III inventory by the deadline and converted the rest lot to BS IV and sold in F18. So, the potential INR 2000000000/- financial impact was avoided and all BS III vehicle stock was cleared in F18 |
| Investment in R&D | Impacted for some suppliers, facilities, or product lines | M&M invested INR 19,380,000,000 in FY16 for product development. Further, INR 18,860,000,000 investments in R&D was done in F17 continuing the R&D efforts to enhance the product offerings INR 19,919,400,000 were further deployed F18, INR 23460000000 were further invested in F19. M&M Limited is already in the business of manufacturing of Electric Vehicles. Further R&D is being done to enhance the product features including product efficiency i.e. more kilometre run on a single battery charge, fast charging, product design etc. As the pioneer of electric vehicles and integrated mobility solutions in India, it has always been our endeavour to make electric vehicles more accessible and best suited for Indian conditions. The launch of the e-Alfa Mini in F18, Treo range of 3 wheelers in F19 are yet another step to provide an emission free, green mode of safe intra city transportation in the country. At Mahindra, we are aligned to the Government’s vision to become a 100% EV nation by 2030. True to the spirit of ‘Make-in-India’, we shall be at the forefront to lead this change along with the Government. F18 onwards portfolio comprises of: E-Verito: Silent, Smooth and Suave. India’s first electric Sedan!, E2O Plus : Zippy, compact and 100% electric – perfect for everyday city drive eSupro: Sturdy and Versatile, India’s first all – electric Cargo and Passenger Van eAlfa Mini: Redefining last-mile connectivity, Treo: Treo range of 3 wheelers - Mahindra’s first electric Rickshaw and other projects are in various R&D stages and likely to be commercialised in coming year. |
| Operations | Impacted for some suppliers, facilities, or product lines | M&M is sourcing open access power from thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. Government of India had set ambitious target of setting up 175GW of RE power by 2022. In line with that RPO obligations are framed to promote RE power. In F16 RPO was compiled by procuring Renewable Energy Certificates(REC's) from open market. In F16 the company set up the 2.1MW wind mill at Jath to meet its Non solar RPO, from 1st May 2017 on wards Wind mills have started delivering power to M&M plants. thus complying RPO and resulting in reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. In F18 the company added 2.1MW wind mill at Aurangabad to meet its Non solar RPO, from 1st May 2018 on wards Wind mills have started delivering power to M&M plants. thus, complying RPO and resulting in reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. This will also reduce dependency on the availability of Grid power. |
| Other, please specify | Please select |  |

## **C2.6**

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

|  |  |  |
| --- | --- | --- |
|  | **Relevance** | **Description** |
| Revenues | Impacted for some suppliers, facilities, or product lines | Upon implementation of BS IV norms on 1st April 2017, Mahindra n Mahindra Limited was left with an inventory of around 18,000 BS-III vehicles, ranging from two-wheeler to trucks. Hence forced to give flash sales giving rigorous model wise discounts, M&M could clear more than half of its BS-III inventory by the deadline and converted the rest lot to BS IV and sold in F18. So, it has been decided strategically that being future ready much ahead of deadline will ease the pressure and provide competitive advantage. hence BVI compliance which is slated for roll out by 1st Apr'2020, M&M plans to be 100% compliant at least 6-months in advance |
| Operating costs | Impacted | M&M is sourcing open access power from thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. Government of India had set ambitious target of setting up 175GW of RE power by 2022. In line with that RPO obligations are framed to promote RE power. In F16 RPO was compiled by procuring Renewable Energy Certificates (REC's) from open market. In F16 the company set up the 2.1MW wind mill at Jath to meet its Non solar RPO, from 1st May 2017 on wards Wind mills have started delivering power to M&M plants. thus complying RPO and resulting in reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. In F18 the company added 2.1MW wind mill at Aurangabad to meet its Non solar RPO, from 1st May 2018 on wards Wind mills have started delivering power to M&M plants. thus complying RPO and resulting in reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. This will also reduce dependency on the availability of Grid power. M&M is also the 1st Indian Company to sign the EP 100 (Doubling of energy productivity) program and have a target to doubling its energy productivity by 2030 with a baseline of FY 2008-09. First Indian Company to commit and declare a carbon price of $10 per ton of carbon emissions. M&M has also committed to Science Based Targets Initiatives. |
| Capital expenditures / capital allocation | Impacted for some suppliers, facilities, or product lines | In F16, M&M became the first Indian company to announce its internal carbon price of US $10 per ton of carbon emissions. (i.e. Rs 664/ tCO2e (scope 1+2)) The move was in-line with business commitment to reduce its GHG emissions year on year. In the reporting period Investment to the tune of INR 30,98,00,000 was made to implement the wind and solar power project along with the other energy efficiency projects. The investment translates to INR 1106/ tCO2e(scope 1+2). Investment (Numerator) = INR 31,37,00,000/- Scope 1+ Scope 2 emissions Denominator = 2,68,727 tCO2e |
| Acquisitions and divestments | Impacted for some suppliers, facilities, or product lines | M&M has strengthened its presence in Turkey by acquiring Erkurt Traktor Sanayali A.S. (Erkunt Tractor) and Erkunt Sanayi A.S (Erkunt Sanayi). Erkunt Tractor is the 4th largest tractor company in Turkey, and is also a leading casting, machining company catering to tractor and other industrial machinery. This provides a strong base to participate in Turkish Agri-machinery market which is one of the largest in the world and hence provide opportunities for additional revenue generation for the Farm Segment. This helps to expand M&M's portfolio to include new categories of tractors and farm machinery in driving radical changes in agri-mechanization landscape and support globalization. |
| Access to capital | Impacted for some suppliers, facilities, or product lines | M&M has been voluntarily disclosing it environmental performance to CDP Climate Change program since 2010 and The Dow Jones Sustainability Indices (DJSI) since past 7years and in annual report BRR for past 4 years which enable investors and other stakeholders to take informed decisions and thus ensured that M&M has access to capital all the time at discounted rates, Also the governance aspects of M&M has been bench marked by others has also strengthened the position of company to access the capital all the time. |
| Assets | Impacted for some suppliers, facilities, or product lines | Our manufacturing plants at Igatpuri and Nashik had reduced supplies of water during F16 drought condition, this lead to adoption of Water saving techniques and set of Rain water harvesting system. Today Igatpuri plant has rainwater storage system in place equivalent to 200-225 days of operation and only draws Municipal water for potable consumption and certified as Water positive plant by BVQI. thus, potential financial impact to the tune of INR 3535292000/- which is Equivalent to 1% of Revenue is avoided and Brand value of M&M is enhanced by investing INR 80,00,000/- |
| Liabilities | Impacted for some suppliers, facilities, or product lines | In F16 RPO was compiled by procuring Renewable Energy Certificates (REC's) from open market. In F16 the company set up the 2.1MW wind mill at Jath to meet its Non solar RPO, from 1st May 2017 onwards Windmills have started delivering power to M&M plants. thus complying RPO and resulting in a reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. In F18 the company added 2.1MW wind mill at Aurangabad to meet its Non-solar RPO, from 1st May 2018 on wards Wind mills have started delivering power to M&M plants. thus, complying RPO and resulting in a reduction in Operating cost (power + REC cash flow avoided) to the tune of INR 4,00,00,000/- and Carbon footprint to the tune of 3500 tons p.a. This will also reduce dependency on the availability of Grid power. |
| Other | Please select |  |

## **C3. Business Strategy**

## **C3.1**

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

Yes

## **C3.1a**

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

Yes, qualitative and quantitative

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

### **(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.**

Yes

## **C3.1c**

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

1. How the business strategy has been influenced?

The company adheres to a well institutionalized and structured Annual Planning Cycle whereby the strategy for the following year is formulated and goes past the Office of Strategy & Management. It is then debated in the Strategy War Rooms where risks and opportunities and their associated financial implications are discussed. Climate change has become a major discussion topic identifying the underlying risks and opportunities while defining the strategy.

We have adopted ‘Promise Statement 2019’ whereby we aim to reduce our water and carbon footprint by 25%. Also we are signatory to the EP 100 program, committing to restrict our energy consumption to the base 2009 level but doubling our production by 2030 in line with the India's NDC's at COP21.

the short term for market based Risk & opportunities , Medium term and long term scenarios are developed to make strategic business transition such ans new products, new business models etc.

company acquired micro irrigation business of M/s. EPC industries with long term view of water shortage risk due to climate change and its Rise philosophy to enable its stakeholders to rise.

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

For us the major influencing aspects have been the impacts of climate change related to water scarcity, energy costs, emission related regulations, risks to supply chain, raw material availability and customer behaviour. These aspects and our performance is assessed at the Operations War Room. All War Rooms are presided by the Chairman/Managing Director of the company along with the Group Chief Finance Officer, Head of Office of Strategy & Management. Also the Chief Executive –Technology, Product Development and Sourcing of the company is involved in identifying significant risks and opportunities.

3. The most important components of the short-term strategy that have been influenced by climate change The company is investing in new alternate fuel technologies. The company’s investment in a majority stake in the Reva Electric Car Company was a strategic decision to make a good hold in this niche market space of environment friendly cars. This investment serves as an example of strategic decisions being influenced by climate change. Also, the water and carbon footprint reduction targets adopted under ‘Promise statement 2019’ are some major strategic initiatives in short term for addressing climate change. Thorough study & analysis of the data & present technology used in manufacturing process, learning from global best practices, helped us conceptualise the project ideas, which shall be key to achieve the EP 100 target to double the Energy Productivity.

We have taken a policy level decision for replacing all our lighting systems with LEDs. Adopt Energy efficient air conditioners, Motors.

4.The most important components of the long-term strategy that have been influenced by climate change In harmony with our Indian and international partners, our R&D team comprising 2500 passionate professionals explores trajectories to introduce future-friendly technologies. We have been working on different platforms of driveable full hybrid vehicles, bio-fuel vehicles, an electric passenger vehicle, a hydrogen combustion engine vehicle and many recyclable materials and reusable technologies. We continue to focus on mitigating CO2 emissions by research and development in conventional power-train technologies, fuel-efficient engines, low friction transmissions and drivelines. On the energy conservation front we are signatory to the EP 100 program to restrict our energy consumption at the 2009 levels, but to double our production by 2030.

Company has committed to Science Based Targets initiatives to adopt low carbon transition growth and has plans to further develop roadmap of 2019 to 2030 and beyond.

5.How this is gaining you strategic advantage over your competitors; Following steps will get us the strategic advantage over our competitors:

• Reducing CO2 footprints by making our conventional fuel engines more fuel efficient and increasing use of alternate fuels like CNG, LPG, & Bio fuels etc.

• Ensuring reduced emission levels against those prescribed by National & International Emission norms. The current vehicle's emission for domestic is BS-IV compliant. Export vehicles are either EURO IV or EURO V compliant.

• We have already developed few concept vehicles with Hydrogen fuel and Bio-Fuels. Some vehicles with Hydrogen & CNG mixture are in the demo phase. The Mahindra e2O is the only full electric passenger vehicle on sale in India

6. what have been the most substantial business decisions made (Outcome of the Process)Climate change is influencing consumer behaviour and governmental policies / regulations - both affect our products and manufacturing facilities. Our strategy enables us to look for opportunities in these changing preferences and policies.

• Development of new advanced fleet which should be more fuel efficient, and can run of non-conventional fuels.

• Downscaling our engines and using lightweight materials to reduce CO2 emissions.

• Strong Influence on 3 Areas mentioned below:

OUTCOME OF THE PROCESS

1. Revenue: During the year we have Investment in below climate change initiatives LED Lighting : INR 54,100,000 .Waste Management: Co processing of the waste in cement industries, Renewable Energy -Solar Power Plants : INR 180,000,000 (4.5 MWp)

Cost :As a part of our strategy we have promise statement 2019, in which we are taken a target of reduction of Carbon & water footprint by 25% by 2019. (Attached are the Promise 2019 for both AD (Int 1) as well as FD ( Int 2)

3. Risk: During the year, we had re-conducted Climate Change Risk workshop with Sustainability teams & location champions using TEMPLES framework and all climate change identified relevant risks has been incorporated into risk register (Attached are the Templates for the reference)

Our Executive chairman, is also on the new strategic investment committee and believes that “Climate change is in fact the next century’s biggest financial and business opportunity… There is going to be a $6 trillion opportunity over the next two decades.” and leads by example for other corporate's to adopt low carbon business growth.

## **C3.1d**

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

|  |  |
| --- | --- |
| **Climate-related scenarios** | **Details** |
| 2DS  Nationally determined contributions (NDCs) | We believe that every business needs to be cognizant and conscious of its use of natural resources, for there is only one planet earth, thus managing them prudently is not only a responsibility but also an obligation for all organisations. The business risk of climate change can affect us in multiple ways – regulatory impact on vehicle sale, physical changes which could affect the operating environment of the vehicles and others. Thus, as we operate in a climate sensitive industry, we have taken major steps to identify and address the risks arising from climate change. The Climate Change risk mitigation process is driven from the top management. We have developed a Climate Change Risk Matrix with intense engagement of our senior management. Based on the risk matrix we have prioritized various projects for investment so that the risk of climate change can be mitigated. We have laid down a comprehensive plan to manage our GHG emissions in line with India NDC’s For NDCs-1) CO2 reduction ; NDC 2) Renewable Energy - We had developed sustainability roadmap with commitment of 25% carbon footprint reduction by 2019 - We by F18 had adopted 5.4MWp Solar power and 6.3MW Wind Power for our manufacturing operations. Our focus on Electric vehicle to increase market share of EVs in India is a major step. In a bid to go green, the government is targeting the year 2030 by which it plans to go all-electric in terms of new car sales in the country. In its National Electric Mobility Mission Plan, the government hopes to get at least six to seven million electric vehicles on the road by 2020 and emphasizes importance of government incentives and coordination between industry and academia. With the Government of India targeting 175 GW of Solar, wind and other RE by 2022, electric vehicles can improve reliability and utilization of renewable by acting as storage, this provides an opportunity (for the company) to materialise in due course. In 2016, We became the first Indian company to announce its internal carbon price of $10 per ton of carbon emissions. The move was in-line with business commitment to reduce its GHG emissions by 25% over the next three years. In F17, we signed up ‘EP100’ campaign led by ‘The Climate Group’, to double our energy productivity by 2030. This is part of our contribution towards achieving the climate goals agreed upon at COP21. Many of these actions are already underway as demonstrated by the Company now uses 63% less energy to produce a vehicle than what was done eight years ago. Mahindra Towers at Worli and Kandivali are Indian Green Building Council (IGBC) Platinum existing buildings. The Mahindra IT Centre at Kandivali is USGBC LEED gold certified green building. 14 Mahindra Group companies including M&M. have also committed for carbon footprint reduction targets as per the SBTi framework Mr. Anand G. Mahindra, Executive Chairman of our Company represented the Corporate World Economic Forum at Davos(F18) and issued a ‘Call to Action’ to all industries and businesses to adopt Science Based Targets is a testimony of Company’s continuing efforts to combat climate change in a collaborative way. NDC 3) Afforestation- We are committed to plant 1 million trees every year through Hariyali program, as on date 15 million trees planted. NDC 4) Investments in Vulnerable areas- We invested in integrated watershed management program at Damoh and Bhopal NDC 5) Capacity building-Baja collaborate with SAE (Society of Automotive Engineers) to promote and accelerate research on climate friendly/eco-friendly technologies for e.g. electric mobility, alternative technologies. The above approaches shall reduce the risk of increasing Input cost, operating cost, Reduction in revenue generation due to products and insulate us against possible business interruptions by 2030. All the above goals are part of MD's KRA's and are reviewed Quarterly in Mahindra Business Leadership Council and Sustainability Council meets |

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

### **(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization’s low-carbon transition plan.**

M&M has different approaches to achieve its low-carbon transition plan:

Approach 1) R&D Collaborations with external business partners: Collaboration for Engine development to meet Futuristic emission norms and improve fuel efficiency M&M has collaborated with (Eg AVL, Continental ,FEV, Ricardo) Alternative fuel development (Eg AFS Canada) Hybrid Development (Eg AVL) and achieved Cost reduction in performance due to 7% to 10% efficiency improvement in Electric Power Train for Electric Vehicles. and also Meet competition in Domestic market , Contributing to meet Indian Fuel Efficiency regulations. Supporting Emission reduction by driving efficiency in Electric Car to meet Scope 3 emissions reduction target.

Approach 2: M&M has a strategic alliance with Ford Motor Company - Under this initiative Mahindra & Ford will leverage their strengths in the utility vehicle space to co-develop a mid-sized sports utility vehicle, & electric vehicles. This will lead to reduced time to market for new developed products and access the new markets thru Ford's distribution network as well.

Approach 3: Research Projects with Academia for Technology Development (Eg IIT Madras, IIT Delhi, MIT, etc) for Technology development in fields of :

· Hydrogen, Engine development

· BioCNG enrichment

· Electric power train efficiency improvement

With this M&M aims to have Technology readiness to meet product requirements for CO2 mitigation and tap new Revenue streams with New products with hydrogen, BioCNG and improved efficiency for EV for future products.

Approach 4: Collaborations with external business partners- Suppliers:

M&M has collaborated with Fuel Injection supplier for New Gen CRDI and Gasoline systems (Eg Bosch, Continental, Delphi) to meet Sales volume by adopting these Technologies to meet Market contemporary emission and FE regulation and Technology for future development for BS VI is also acquired thus achieving 5% to 10 % System Efficiency gain by 30 % Reduction in time to Market

Approach 5: Acquisitions: M&M has strengthened its presence in Turkey by acquiring Erkurt Traktor Sanayali A.S. (Erkunt Tractor) and Erkunt Sanayi A.S (Erkunt Sanayi).

This provides a strong base to participate in Turkish Agri-machinery market which is one of the largest in the world & hence provide opportunities for additional revenue generation for the Farm Segment.

This helps to expand M&M's portfolio to include new categories of tractors & farm machinery in driving radical changes in agri-mechanization landscape & support globalization.

M&M Limited is already in the business of manufacturing of Electric Vehicles.

Further R&D is being done to enhance the product features including product efficiency i.e. more kilometre run on a single battery charge, fast charging, product design etc.

M&M invested INR 19,380,000,000 in FY16 for Product Development. Further, INR 18,860,000,000 investments was done in FY17R&D. INR 19,919,400,000 were further deployed FY18, Continuing the R&D efforts to enhance the product offerings INR 26,430,000,000/-

As the pioneer of electric vehicles and integrated mobility solutions in India, it has always been our endeavour to make electric vehicles more accessible and best suited for Indian conditions. The launch of the e-Company Launched Alfa Mini in F18 followed by Treo - Electric Three-wheelers in FY19 is yet another step to provide an emission free, green mode of safe intra city transportation in the country.

The company plans to collaborate for enhancing customer awareness, promote domestic manufacturing, promote new business models, conduct R&D for EVs and components, consider new business models to promote EVs considering the Government's’ thrust on adopting EVs, and sustained effort by the Company in working with various stakeholders, especially fleet operators

The company understands that despite of increase in EV Sales , EVs now have not reached a point where we can afford to spend that much money for an electric only platform.

M&M is not betting in a big way on personal use of EVs, in the short-run plan to convert current vehicles to EVs.

XUV300-electric might have two options...one for shared mobility which will be a low-cost option and one option for personal mobility.

Presently M&M is trying to see how its alliance with Ford and the one with Ssangyong can be leveraged fully to help each of the three associations to reduce product development costs and get a larger economy of scale for purchasing by having a common platform that the companies share across.

F19 onwards portfolio comprises of :

E-Verito: India’s first electric Sedan!,

E2O Plus : Zippy, compact perfect for everyday city drive

eSupro: Sturdy and Versatile, India’s first all – electric Cargo & Passenger Van

eAlfa Mini: Redefining last-mile connectivity,

Treo: India's first Li-ion 3-wheeler auto and other projects are in various R&D stages and likely to be commercialized in coming year.

## **C4. Targets and performance**

## **C4.1**

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

Both absolute and intensity targets

## **C4.1a**

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

### **Target reference number**

Abs 1

### **Scope**

Scope 1

### **% emissions in Scope**

100

### **Targeted % reduction from base year**

9

### **Base year**

2016

### **Start year**

2017

### **Base year emissions covered by target (metric tons CO2e)**

38051

### **Target year**

2019

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **% of target achieved**

84.4

### **Target status**

Revised

### **Please explain**

The target setting FY2018-2019 was 43672 MTCO2e MORE than actual emissions in FY 2015-2016 Base year, because of high production volume. However, there is an increase of 4.8% in absolute scope 1 emissions (i.e. Actual 45768 MTCO2e) compared to set a target of 43672 MTCO2e Scope 1 emissions increased because: • We have widened the scope of reporting with the inclusion of Mahindra Two-Wheeler Division which was previously a subsidiary and has become a part of M&M Ltd in the year 2018 which has also led to increasing in Emissions. • There was extra ordinary consumption of diesel for testing of new products prior to launch. 4 COMPLETELY NEW platforms (Marrazzo, XUV300, Alturas G4, JAWA) were launched in one year which is a very rare occurrence. In addition, there were 5 other product launches/ refreshes

### **Target reference number**

Abs 2

### **Scope**

Scope 2 (location-based)

### **% emissions in Scope**

100

### **Targeted % reduction from base year**

9

### **Base year**

2016

### **Start year**

2017

### **Base year emissions covered by target (metric tons CO2e)**

204272

### **Target year**

2019

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **% of target achieved**

85.3

### **Target status**

Revised

### **Please explain**

Absolute Scope 2 emissions increased because: • We have widened the scope of reporting with the inclusion of Mahindra Two-Wheeler Division which was previously a subsidiary and has become a part of M&M Ltd in the year 2018 which has also led to increasing in Emissions. • 4 COMPLETELY NEW platforms (Marrazo, XUV300, Alturas G4, JAWA) were launched in one year which is a very rare occurrence. In addition, there were 5 other product launches/ refreshes

## **C4.1b**

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

### **Target reference number**

Int 1

### **Scope**

Scope 1+2 (location-based)

### **% emissions in Scope**

87

### **Targeted % reduction from base year**

15

### **Metric**

Metric tons CO2e per vehicle produced\*

*This Target is only for Automotive division + Farm Division + Swaraj Division which contributes to 87% of total Scope 1+2 emissions of the company. Here, Vehicle Produced = Equivalent Vehicles of Automotive Division + Equivalent Tractors of Farm & Swaraj Division*

### **Base year**

2016

### **Start year**

2017

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

0.264

### **Target year**

2021

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **% of target achieved**

55.67

### **Target status**

Underway

### **Please explain**

This Target is only for Automotive division + Farm Division + Swaraj Division which contributes to 87% of total Scope 1+2 emissions of the company. Here, Vehicle Produced = Equivalent Vehicles of Automotive Division + Equivalent Tractors of Farm and Swaraj Division and is for Financial year and not the calendar year. Base line intensity FY16 = 0.26416696 tCO2e/ Vehicle Produced Target current status FY18 = 0.242118 tCO2e/ Vehicle Produced Target year emissions FY21= 15% < F16 = 0.224541921 tCO2e/ Vehicle Produced Current emission status = (0.264 -0.242)/0.264 = 8.35% reduced w.r.t base line i.e. FY18 = 8.35% < FY16 % Achieved (emissions) = (8.35%/15%)=55.67%

### **% change anticipated in absolute Scope 1+2 emissions**

8.35

### **% change anticipated in absolute Scope 3 emissions**

0

### **Target reference number**

Int 2

### **Scope**

Scope 3: Use of sold products

### **% emissions in Scope**

100

### **Targeted % reduction from base year**

11

### **Metric**

Grams CO2e per kilometer\*

### **Base year**

2015

### **Start year**

2016

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

100

### **Target year**

2019

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **% of target achieved**

100

### **Target status**

Achieved

### **Please explain**

Say our Baseline year (F15) emissions are 100% our Target is 11% Reduction over baseline by 2019 = 89% Current status (F19) = 88.63% i.e. F19 11.37% REDUCTION achieved over Baseline F15

### **% change anticipated in absolute Scope 1+2 emissions**

0

### **% change anticipated in absolute Scope 3 emissions**

11.37

## **C4.2**

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

### **Target**

Energy productivity

### **KPI – Metric numerator**

Equivalent Vehicles Produced in Automotive Division Note: Base year and target year EP 100 NORMALISED based on the new methodology for calculating the Equivalent vehicle produced devised in FY18

### **KPI – Metric denominator (intensity targets only)**

Giga Joule of Energy consumed to produce the Equivalent Vehicles in Automotive Division

### **Base year**

2008

### **Start year**

2009

### **Target year**

2030

### **KPI in baseline year**

0.407

### **KPI in target year**

0.814

### **% achieved in reporting year**

90.8

### **Target Status**

Underway

### **Please explain**

Mahindra & Mahindra Ltd. has become the first Indian company to join a global energy campaign led by an international non-profit group that will work with the world’s most influential businesses in setting commitments to double their energy productivity. We believe that doing more with less energy simply is the way forward to a sustainable future Energy productivity: To Double our Energy Productivity (i.e. Equivalent Vehicles produced in Automotive division per Giga Joule of Energy consumed to produce it ) by FY 2030 w.r.t. Base Line of FY 2009. Sustainability is an integral part of Mahindra’s approach to business. By signing up for EP100, We hope to make a strong contribution towards achieving the climate goals agreed upon at COP21. We hope many other corporations will become a part of this campaign.

### **Part of emissions target**

This Target is only for Automotive division which contributes to 43% of total Scope 1+2 emissions of the company. Here, Vehicle Produced = Equivalent Vehicles of Automotive Division. We have similar targets for Farm Division & Swaraj Division monitored separately for better performance measurement. Since the output of the Automotive division and Farm division and swaraj division is distinctly different. Note: Base year and target year EP 100 NORMALISED based on the new methodology for calculating the Equivalent vehicle produced devised in FY18

### **Is this target part of an overarching initiative?**

EP100

### **Target**

Energy productivity

### **KPI – Metric numerator**

Equivalent tractors produced at Farm Division and Swaraj Division

### **KPI – Metric denominator (intensity targets only)**

Giga Joule of Energy consumed

### **Base year**

2008

### **Start year**

2009

### **Target year**

2030

### **KPI in baseline year**

0.547

### **KPI in target year**

1.094

### **% achieved in reporting year**

50.9

### **Target Status**

Underway

### **Please explain**

Mahindra & Mahindra Ltd. has become the first Indian company to join a global energy campaign led by an international non-profit group that will work with the world’s most influential businesses in setting commitments to double their energy productivity. We believe that doing more with less energy simply is the way forward to a sustainable future Energy productivity: To Double our Energy Productivity (i.e. Equivalent Tractors produced in Farm and Swaraj division per Giga Joule of Energy consumed to produce it ) by FY 2030 w.r.t. Base Line of FY2009. Sustainability is an integral part of Mahindra’s approach to business. By signing up for EP100, We hope to make a strong contribution towards achieving the climate goals agreed upon at COP21. We hope many other corporations will become a part of this campaign.

### **Part of emissions target**

This Target is only for Farm Division + Swaraj Division which contributes to 32% of total Scope 1+2 emissions of the company. Here, Vehicle Produced = Equivalent Tractors produced of Farm Division + Swaraj Division

### **Is this target part of an overarching initiative?**

EP100

## **C4.3**

### **(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

## **C4.3a**

### **(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of initiatives** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 123 |  |
| To be implemented\* | 89 | 13576 |
| Implementation commenced\* | 40 | 4438 |
| Implemented\* | 254 | 11172 |
| Not to be implemented | 1 |  |

## **C4.3b**

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

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

Lighting

### **Estimated annual CO2e savings (metric tonnes CO2e)**

673

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

7969958

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

23753150

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Replacing the existing Lighting fixtures to LED Lighting

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

Motors and drives

### **Estimated annual CO2e savings (metric tonnes CO2e)**

1222

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

11660304

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

9968209

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Switching over from IE2 / Standard efficiency Motor to IE3/ IE4 motors.

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

HVAC

### **Estimated annual CO2e savings (metric tonnes CO2e)**

338

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

3259272

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

4475000

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Energy Effciecnt Airconditiorners for Offices and installation of HVLS Fans inplace of conventional Air circulators at shop floor

### **Initiative type**

Energy efficiency: Building services

### **Description of initiative**

Building controls

### **Estimated annual CO2e savings (metric tonnes CO2e)**

552

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

4852945

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

3787748

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Bundle of projects related to automation and controls to reduce the energy consumption, such as timer / PLC controls to regulate the cycle time of the machines

### **Initiative type**

Process emissions reductions

### **Description of initiative**

Changes in operations

### **Estimated annual CO2e savings (metric tonnes CO2e)**

521

### **Scope**

Scope 1

### **Voluntary/Mandatory**

Voluntary

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

6241450

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

199877

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Bundle of projects related to automation controls leading to the elimination of idle time and process/productivity improvement. Such as modification to tools and tackles in the process line reducing the cycle time thus improving the productivity and Fuel savings.

### **Initiative type**

Process emissions reductions

### **Description of initiative**

Changes in operations

### **Estimated annual CO2e savings (metric tonnes CO2e)**

4695

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

44171901

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

26888998

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Bundle of projects related to automation controls leading to the elimination of idle time and process/productivity improvement. Such as modification to tools and tackles in the process line reducing the cycle time thus improving the productivity and Electricity savings.

### **Initiative type**

Energy efficiency: Processes

### **Description of initiative**

Compressed air

### **Estimated annual CO2e savings (metric tonnes CO2e)**

2280

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

21733482

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

14635903

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

3-5 years

### **Comment**

Bundle of projects implemented to reduce the compressed air generation requirement through the installation of an Auto-shutoff valve at the machine level, and IFC Demand-side controller at the individual shop level as per required compressed air pressure set points.

### **Initiative type**

Energy efficiency: Processes

### **Description of initiative**

Process optimization

### **Estimated annual CO2e savings (metric tonnes CO2e)**

889

### **Scope**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

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

8578447

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

90816500

### **Payback period**

1-3 years

### **Estimated lifetime of the initiative**

3-5 years

### **Comment**

Design modification to optimize the cycle time of the process to eliminate the idle running of equipment through modification in control logics, introducing the master-slave mechanism to maximize the productivity using less energy, lubricants and other resources

## **C4.3c**

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

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Compliance with regulatory requirements/standards | At Mahindra by default all Compliance with regulatory requirements/standards are to be complied and strict adherence is the norm. So any project / initiative which is meant for Compliance with regulatory requirements/standards is approved for deployment irrespective of cost, Only proper evaluation of the relevant Compliance with regulatory requirements/standards is required to be provided with project request note for budget approval |
| Dedicated budget for energy efficiency | The central energy management team identifies the potential energy saving projects across all the plant locations in collaboration with plants energy managers. The projects are presented to the senior management for approvals and the budget for energy efficiency and emissions reduction is sanctioned based on the principle of Remove, Reduce, Reuse, Recycle and only then dispose: a. Process initiative with defined payback cut-off b. Engineering initiative with defined payback cut-off c. Sustainability Initiative d. Technology up-gradation |
| Dedicated budget for low-carbon product R&D | We have separate budget for the low carbon product R&D. We have engines which runs on CNG, Electric etc. In the current we have launched E-Alpha autorikshaw as a new product launch which is part of this Budget. In line with business strategy, company had provided EESL - Energy Efficiency Services Limited a platform to pilot the Energy efficient Motor program, which was subsequently rolled out to other industries incorporating the findings of the pilot program |
| Dedicated budget for other emissions reduction activities | In 2016, the company has declared an internal carbon price of $10 per tonne, becoming the first major Indian company to take such a step, joining a global group of companies, including biggies such as Google and Microsoft, to have announced internal carbon prices. This is a commitment by us to invest in technologies and equipment that will help offset our carbon footprint. Internal carbon pricing does not follow any established models, and is seen as an investment by the company into cleaner technologies to reduce dependence on energy, or to devise greener ways of operating. |
| Employee engagement | At Mahindra we believe that the people who use energy can drive efficiency and effectiveness of the process, hence , employees are encouraged to provide their suggestions that they feel appropriate, which is then screened at central level and shared with all manufacturing sites across India for cross deployment. At the management level as well as operational level we have groups of people who generate various Ideas / Suggestions related to their own processes so that same can be implemented. We have also initiated Energy Efficient project award, for Associate Level “i4” ideas generation drive, where in other awards are also given. Residential Electricity completion, Every year for all employees we conduct Under the unbrella of making sustainability personal we have a Residential Electricity bill competition. In which employee/ associate/ workers/ who saves the maximum amount of energy at their residence, we pay entire year's electricity bill to the winner of the competition. |
| Internal price on carbon | In 2016, the company has declared an internal carbon price of $10 per tonne, becoming the first major Indian company to take such a step, joining a global group of companies, including biggies such as Google and Microsoft, to have announced internal carbon prices. This is a commitment by us to invest in technologies and equipment that will help offset our carbon footprint. Internal carbon pricing does not follow any established models, and is seen as an investment by the company into cleaner technologies to reduce dependence on energy, or to devise greener ways of operating. |
| Internal incentives/recognition programs | The Mahindra Sustainability Awards have been in place since 2012-13, which award businesses, unit/locations or employees from the group for their sustainability related performance for the previous year. The awards are divided into 4 categories: 1. The Grandmaster Award is a business level award for best overall performance in all 3 bottom lines. 2. The Progressive Performer Award is a unit/location level award for outstanding improvements in sustainability related parameters w.r.t the previous year. 3. The Game Changer Award is a unit/location level award for any path-breaking initiative for improving any of the 3 bottom lines with the desired result (eg: energy/water saving, emission reduction, local sourcing, life cycle assessment). 4. The Change Agent Award is for the most proactive sustainability champion, who has managed to influence senior management to raise the sustainability bar in the organisation. We also carry out the Sustainability Awards for Suppliers which is earmarked to recognize the outstanding contribution by suppliers towards the cause of sustainability. The suppliers are assessed on parameters such as GRI indicator monitoring, availability of Sustainability Roadmaps and key initiatives undertaken. All employees contributing to the annual reporting as per the GRI framework and those involved in any special projects relating to energy efficiency are recognized by the Chairman, Sustainability Council with a certificate. |
| Lower return on investment (ROI) specification | In FY2016 we have formulated Green Procurement Policy and developed Green procurement specification sheets for all utilities items, and have mandated energy consumption criteria for purchasing new machines/ equipment's. Purchase team and concerned CME team who are responsible for design of new facilities, they have been provided awareness training and the guidelines have been shared with them and available for use in common shared folder on the intranet of the company |
| Partnering with governments on technology development | In line with business strategy, company had provided EESL - Energy Efficiency Services Limited a company under Ministry of Power-GoI, platform to pilot the Energy efficient Motor program, which was subsequently rolled out to other industries incorporating the findings of the pilot program |

## **C4.5**

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

Yes

## **C4.5a**

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

### **Level of aggregation**

Group of products

### **Description of product/Group of products**

Electrical Vehicles + CNG Vehicles + Micro-hybrid vehicles

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

Low-carbon product and avoided emissions

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

Climate Bonds Taxonomy

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

3.06

### **Comment**

Revenue from Electric vehicle 1.69%, CNG Vehicle 1.14% diesel/ hybrid vehicle 0.001%, Gasoline + CNG (bi-fuel) 0.22% equal to total 3.06% revenue from low carbon product(s) in the reporting year Diesel Vs CNG - Considering for every 10000 Km travel in Mumbai, Diesel Vehicle will Require INR 50000/- for 833.33 Litres of Diesel and emissions will be 2204 kg of CO2e; CNG vehicle will require INR 13700/- for 555.60 Kg of CNG and emissions will be only 1216 kg of CO2e i.e. reduction of 988 kg of CO2e for every 10000 Km traveled. Diesel Vs Electric - The electric car will require INR 6250/- for 1473 units of electricity and emissions will be only 1208 kg of CO2e (avoided emissions 996 kg of CO2e for every 10000 Km traveled). Diesel Vs Hybrid - A hybrid car will require INR 30850/- for fuel and emissions will be only 1375 kg of CO2e (avoided emissions 828 kg of CO2e for every 10000 Km traveled). Total avoided emissions in tons of CO2e for 10000 kms CNG vehicles - 5058 Diesel/Hybrid vehicles - 2274 Electric vehicles - 1.79 Gasoline + CNG (Bi-fuel) - 0.83

### **Level of aggregation**

Group of products

### **Description of product/Group of products**

As the water availability is limited we have to derive the methods to optimize its use and at the same time provide more yield to feed the increased population. Drip irrigation maximizes water use efficiency and also productivity. This means that on one hand, we will optimize the use of water and on the other hand, we will be able to produce more. Few benefits of drip irrigation are : Water use efficiency can be increased. Production maximized with minimized water use. Cost of production economized. Waste and fallow lands can be brought under cultivation. The quality of crop production is increased. Poor quality and saline water can be efficiently used. Reduce environmental pollution and improve soil health. Achieve total food security.

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

Low-carbon product and avoided emissions

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

Climate Bonds Taxonomy

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

0.48

### **Comment**

M&M is involved in the installation of efficient irrigation systems in a few talukas of Maharashtra, this replaces the dominantly used flood irrigation method which makes use of extensive water quantity, unlike micro-irrigation systems. This will result in - Water saving: 30% - 40%; - Labour saving: 30% - 50%; - Power saving: 20% - 40%; - GHG Saving: 20% - 40%; - Fertilizer and Nutrition saving: 30% - Productivity improvement: 10% - 30% Sample calculation: A 5 hP pump delivering 5 Lps will consume 3.7 units per hour i.e. for every 10000L of water pumped will require 2 units. Micro Irrigation System implemented helps save XX Liter water required for particular crop. XX Liter x 2 / 10000 = Electricity units saved GHG saved (tons) = Electricity saved x 0.82/1000

## **C5. Emissions methodology**

## **C5.1**

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

### **Scope 1**

### **Base year start**

April 1 2015

### **Base year end**

March 31 2016

### **Base year emissions (metric tons CO2e)**

38051

### **Comment**

Scope 1: Direct GHG emissions Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled Ovens , furnaces, vehicles, etc.; emissions from production in owned or controlled process equipment. Direct CO2 emissions from the combustion of biomass are NOT included in scope 1 but reported separately (if applicable)

### **Scope 2 (location-based)**

### **Base year start**

April 1 2015

### **Base year end**

March 31 2016

### **Base year emissions (metric tons CO2e)**

219108

### **Comment**

Scope 2: Electricity indirect GHG emissions Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. Solar Power from third party is reported here and Solar/Wind Power generated from owned installation is reported under scope 1.

### **Scope 2 (market-based)**

### **Base year start**

April 1 2015

### **Base year end**

March 31 2016

### **Base year emissions (metric tons CO2e)**

204272

### **Comment**

Scope 2: Electricity indirect GHG emissions Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. Solar Power from third party is reported here and Solar/Wind Power generated from owned installation is reported under scope 1.

## **C5.2**

### **(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

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

## **C6. Emissions data**

## **C6.1**

### **(C6.1) What were your organization’s gross global Scope 1 emissions in metric tons CO2e?**

### **Reporting year**

### **Gross global Scope 1 emissions (metric tons CO2e)**

45768

### **Start date**

April 1 2018

### **End date**

March 31 2019

### **Comment**

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled furnaces, vehicles, etc.; Direct CO2 emissions from the combustion of biomass are not included in the scope 1. Gross global Scope 1 emissions (metric tons CO2e) in the current reporting year i.e. FY 2019 F19 Scope 1 Increased from the previous year by 9.6% calculation Reduction from previous year(F19 Vs F18) = (41777-45,767.6)/41777=-9.6%

### **Past year 1**

### **Gross global Scope 1 emissions (metric tons CO2e)**

41777

### **Start date**

April 1 2017

### **End date**

March 31 2018

### **Comment**

Gross global Scope 1 emissions (metric tons CO2e) in a year prior to current reporting year i.e. FY 2018 F18 scope 1 Reduced from previous year by 0.8% calculation Reduction from previous year(F18 Vs F17 = (42093-41777)/42093=0.8%

## **C6.2**

### **(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.**

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

### **Scope 2, market-based**

We are reporting a Scope 2, market-based figure

### **Comment**

Scope 2: Electricity indirect GHG emissions Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. Solar Power from the third party is reported here and Solar/Wind Power generated from owned installation is reported under scope 1.

## **C6.3**

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

### **Reporting year**

### **Scope 2, location-based**

247948

### **Scope 2, market-based (if applicable)**

234351

### **Start date**

April 1 2018

### **End date**

March 31 2019

### **Comment**

Scope 2: Electricity indirect GHG emissions Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. Solar Power from the third party is reported here and Solar/Wind Power generated from owned installation is reported under scope 1.

### **Past year 1**

### **Scope 2, location-based**

229217

### **Scope 2, market-based (if applicable)**

226950

### **Start date**

April 1 2017

### **End date**

March 31 2018

### **Comment**

Gross global Scope 2 emissions (metric tons CO2e) in a year prior to current reporting year i.e. FY 2018

## **C6.4**

### **(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

No

## **C6.5**

### **(C6.5) Account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions.**

### **Purchased goods and services**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

8750210.72

### **Emissions calculation methodology**

We have tried to calculate the Purchased good and Services scope 3 emissions using the free scope 3 screening tool (Quantis scope 3 evaluator tool) Calculation method: For any purchase types identified by the user(M&M) as Standard Good or Service, the sector of purchase chosen by the user is linked to a 2009 world multiregional estimate of average environmental impacts by region-sector combined with global warming potential impact assessment (Timmer 2012, IPCC 2007). The reference flow quantity is provided by the user(M&M)in the form of purchase quantity in basic price USD.

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

0

### **Explanation**

We are the manufacturer of automobile vehicles, most of our emissions get covered and disclosed in our value chain. We capture our inbound and outbound emissions and report also. However, we have tried to calculate the Purchased good and services scope 3 emissions using Quantis Scope 3 evaluator.

### **Capital goods**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

323632.08

### **Emissions calculation methodology**

To help facilitate the adoption of the Scope 3 Standard, GHG Protocol teamed up with Quantis to develop this free scope 3 screening tool. We have tried to calculate the Capital goods scope 3 emissions using this free scope 3 screening tool. Calculation method: For any purchase types identified by the user (M&M) as Capital Good (regardless of Direct Procurement or Indirect Procurement), the identified sector of purchase points to a 2009 world multiregional estimate of average environmental impacts by region-sector combined with global warming potential impact assessment (Timmer 2012, IPCC 2007). The basic price USD purchase quantity entered by the user(M&M) is the reference flow quantity.

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

0

### **Explanation**

M&M Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M Group scope 3 emissions and 2) Influence of M&M Group on emission reductions. We do not consider this Scope 3 category to be of particular relevance because of our limited influence on these suppliers. The corresponding emissions are estimated to be below 5% of our total Scope 3 emissions in the reporting period. The selection of new equipment or buildings focuses on the use phase (increased resource efficiency, minimized CO2 emissions). Our influence on operations and therefore on CO2 emissions of these kinds of suppliers is less than e.g. for suppliers of production material where we often have closely collaborated for many years. Nevertheless, measures to improve CO2 emissions performance are the same applying for all direct and indirect suppliers which are described in more detail in Q 12.1 (e.g. contractually fixed requirement to install an environmental management system).

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

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

58312.2

### **Emissions calculation methodology**

We have tried to calculate the Fuel-and-energy-related activities scope 3 emissions using the free scope 3 screening tool (Quantis scope 3 evaluator tool) Calculation method: The Quantis scope 3 evaluator tool uses the Ecoinvent substances database to calculate the Fuel-and-energy-related activities emissions based on Scope 1 & Scope 2 emissions as an input.

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

0

### **Explanation**

We had keyed in already calculated Scope 1 and 2 emissions in the tool and tool calculates Fuel-and-energy-related activities (not included in Scope 1 or 2)

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

72920

### **Emissions calculation methodology**

We calculate the emissions arising from inbound logistics to our facilities. The mode of transport (road, rail, sea or air), the distance of the supplier from our facility and the number of trips is reported to our central team on a monthly basis. In the case or transport by road, the vehicle tonnage is also reported. Appropriate emissions factors (Source- IPCC) are used to calculate the total tCO2 from our inbound logistics.

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

100

### **Explanation**

Inbound logistics are all the processes related to bringing materials and products into your warehouse or facility. It includes receiving, storing and disseminating incoming goods or materials. A business may spend more than 40% of its annual freight budget on inbound delivery. Improving efficiencies in our inbound program can minimize delays, save money and streamline processes. It is a significant area of opportunity. Below are the steps we take to improve inbound logistics in our organization: • Find your actual costs – Determine the freight cost for each SKU we order from suppliers. If they’re bundled with the product price, have our vendors break the shipping cost out for us. • Know what to negotiate – Longer term contracts with carriers may help you get deeper discounts but remember that shipping rates are only part of the equation. We need to negotiate a cap on fuel costs as well. Otherwise, fuel surcharges may eat away at our savings. • Streamline your inbound shipping process – Create a predictable inbound shipping process. Start by collecting freight data on the volume, frequency, and cost for shipments delivered to your company. Look for ways to combine the orders from the same geographic areas to qualify for truckload rates. Set up rules for vendors to use when selecting which carriers to use for your shipments. Look at ways to minimize the number of deliveries arriving at once, to simplify the receiving process at your warehouse. • Communicate with suppliers – Once we have a plan in place, we need to clearly communicate it to our suppliers. Send them a written notice and require that they sign off on it confirming receipt. Be sure to also add redundancy to our P.O.’s specifying how our orders are to be shipped. • Emphasize compliance – Make sure our vendors know that you will not pay for shipping selected by them without your approval. This will help enforce compliance with our inbound shipping policies. • Set up a third-party consignee billing account - Have vendors use this account when arranging smaller shipments, under 200-250 kgs.

### **Waste generated in operations**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

16122

### **Emissions calculation methodology**

These are negative emissions, that is we have avoided emissions by our waste management practices. Methodology: The total waste generated from M&M operations is divided into two categories – Hazardous Waste and - Non Hazardous waste. We track waste generation from different streams, including the nature of waste and disposal method. All Non-Hazardous waste is either RECYCLED & REUSED through Authorised RECYCLER approved by the State pollution control board. We report about the waste generated from different sources in our sustainability report. Also in F19- 8 Mahindra manufacturing sites were Certified ZERO Waste to Landfill by M/s. Intertec and we have plans to make all our manufacturing sites to be Zero Waste to Landfill. Non-Hazardous waste (95 % of total waste) is fed into the Waste Reduction Model given by USEPA. This model returns GHG emissions for the waste data entered. Following is the output from the WARM model for F19: Automotive Sector: 10882 tons of CO2e emissions avoided Farm + Swaraj Division: 4880 tons of CO2e emissions avoided Spare business units + MRV Chennai: 360 tons of CO2e emissions avoided Total M&M Limited: 16122 Tons of CO2e emissions avoided. Also, 80% of our Hazardous Waste is sent for Co-processing either to the Cement industry or to a Co-processing plant wherein the Hazardous waste is treated as raw material to produce different outputs. eg cement, Carbon black, Diesel equivalent oil, etc

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

100

### **Explanation**

These are negative emissions, that is we have avoided emissions by our waste management practices. • Cost benefits: Enhances financial performance through the identification, implementation, and tracking of financial savings associated with waste management initiatives. • Environmental benefits: Data allows the tracking of environmental benefits. For example, X kgs. of waste recycled reduced our greenhouse gas emissions XX number of tCO2e. Successes breed more successes, ultimately reducing the organization's overall environmental impact through the identification, implementation, and tracking of environmental attributes associated with waste management activities. • Health and safety benefits: Clearly communicate the organization's waste management goals and the progress made. o Encourages staff, leadership and the community to further engage in waste management initiatives. • Quality and outcomes - Metrics are in development to evaluate the performance over time. • For companies like us seeking LEED certification, implementing a commute program makes additional points available. Under the Materials & Resources section, 4 Credits are available for Solid Waste Management: Waste Stream Audit Solid Waste Management- Ongoing Solid Waste Management- Facility Management and Renovation

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

15315

### **Emissions calculation methodology**

As per the Green House Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

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

100

### **Explanation**

An explanation for Relevance: Business air, road, rail travel is done for finding out new technologies, supplier capability building, customer support, etc. Knowing how, where and when employee commutes for business purpose lead us to save for the company. At Mahindra, we strongly believe Happier employees = more productive employees lead to a more profitable company We have robust tracking and recording system in place and records for the business travel are analyzed to make business decisions for introducing Video conferencing facilities, shuttle service facilities so that business travel cost, as well as the cost of it, can be reduced and most importantly the productivity of the individuals traveling is enhanced. It provides additional benefits to retain our best employees and entice future talent.

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

2395

### **Emissions calculation methodology**

As per the Green House Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

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

0

### **Explanation**

Knowing how, where and when employee commutes to our office lead us to savings for both. Tracking our employees' commute allows us to have a better understanding of their employee’s mindset. Maybe they are all sitting in traffic for 1 to 2 hours and are absolutely miserable and stressed by the time they get in this enabled us to promote Job flexibility in way of Flexi working hours, Work from home and thus provides additional benefits to retain our best employees and entice future talent At Mahindra, we strongly believe Happier employees = more productive employees lead to a more profitable company Who doesn’t want to work for / stay at a company that helps employees spend more of their time with family? Corporate responsibility and carbon footprint reporting have become a number that investors are expecting to see. Having very accurate information on programs to reduce single-occupancy vehicles reduces a company’s carbon footprint. Aggressive commuter programs can reduce commuter carbon emissions by 25% or more, M&M has different programs like carpool, making sustainability personal, cycle to work, etc considering the traffic scenarios, employees are encouraged to travel through public transport and are provided with bus services. We track these emissions on a Quarterly basis. Employees using carpools are given preferred parking allotment at most of the locations. For companies like us seeking LEED certification, implementing a commute program makes additional points available. Under LEED SS 4.1, Alternative Transportation – Public Transportation Access – there is an extra credit point for creating a ‘comprehensive transportation management plan’ showing a quantifiable reduction in auto use. Under LEED SS 4.2 – Alternative Transportation – Bicycle Storage & Changing Rooms provides another extra point for creating that ‘comprehensive transportation management plan’. An additional point is also available under SS 4.3 – Alternative Transportation – and Low Emitting and Fuel Efficient Vehicles – and SS 4.4 – Alternative Transportation – Parking Capacity.

### **Upstream leased assets**

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

We did not have any Upstream leased during the reporting period. hence Scope 3 emissions under Upstream leased assets category is ZERO

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

100

### **Explanation**

We did not have any Upstream leased during the reporting period. hence Scope 3 emissions under Upstream leased assets category is ZERO

### **Downstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

127735

### **Emissions calculation methodology**

We calculate the emissions arising from outbound logistics from our facilities. The mode of transport (road or rail), the distance of the distribution centre from our facility and the number of trips is reported to our central team on a monthly basis. In the case or transport by road, the vehicle tonnage is also reported. Appropriate emissions factors (Source- IPCC AR 5 and GHG accounting protocol) are used to calculate the total tCO2 from our outbound logistics.

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

100

### **Explanation**

The explanation for relevance: Outbound logistics can be defined as: “The process related to the movement and storage of products from the end of the production line to the end-user” Product lines are proliferating, Product life cycles are contracting and Technological development in transportation and material handling is compelling companies to shift from manufacturers to the trader’s mindset primarily for 1. Cost reduction 2. Capital reduction 3. Service improvement Tracking downstream transportation and distribution activities provide inputs for • Production planning • centralizing production to gain economies of scale • Maximise Production efficiency • Reduction in inventory • Optimise the transportation & Distribution cost • Reduce and eliminate the damages during Transportation & Distribution • Adopt technology that reduces the handling of goods to enhance the safety • Elevating the service experience to the distributor & end-user • Reduce the carbon footprint • Meet the multi-stakeholders expectations Outbound logistics includes the final step of the delivery process, which is often referred to as one of the key make or break steps in the CRM process. Given its critical role, our planning and approach towards outbound logistics can benefit greatly from quantitative “firm performance data” based research, as well as from insights generated by more qualitative perception-based data We decided that actual performance data on a set of performance levels and costs for outbound logistics would facilitate an insightful, fact-based perspective. We, therefore, developed data on a concise set of variables that covered all major components of outbound logistics consisting of: • The management of the inventory produced (to be delivered to the customer) • The distribution process (i.e., warehousing and transportation) • The service to the customer (i.e., the actual delivery) • Capabilities and commitment to demand forecasting and supply chain planning. The matrix of below 8 variables provides us the insights for forward and backward planning • Inventory carrying costs [InvCC] • Obsolete inventory costs [OBSInv] • Days of inventory on hand [DaysInv] • Warehousing costs [WHcosts] • Transportation costs [TRcosts] • On-time delivery performance [OTD] • Forecast accuracy [FcastAc] • Supply chain planning costs [SCPcosts]

### **Processing of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

M&M is an OEM. Hence there is no further processing of our sold products required to use them. M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. M&M's core business, mobility products, and services are consumer goods, which are not further processed. Consequently, the scope 3 category “Processing of sold Products” is not relevant for M&M.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

8235550

### **Emissions calculation methodology**

During the reporting period, 607548 automotive vehicles were sold and 330436 tractors were sold, which contributes to Scope 3 emissions under this category. To calculate scope 3 emissions due to the use of sold products: 1) Emissions from Automotive vehicles Sold in FY19 = No. of vehicles x emission factor tCO2e per km x 10000 km running per year = 607548 x 0.000924027 x 10000 = 56,13,908 tons of CO2e 1) Emissions from TRACTORS Sold in FY19 = No. of tractors x diesel consumption (liter) per hour x 1000 hour running per year x diesel CO2 emission factor (kg per litre) = 330436 x 3 x 1000 x 2.64 kg = 26,21,643 tons of CO2e Total = 56,13,908 + 26,21,643 = 8,235,550 tons of CO2e

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

100

### **Explanation**

Being an automotive industry, Use of Sold products contributes to major emissions. We have started calculating from this reporting period using total sales volume and emission factors as under In F19: 6,07,548 automotive vehicles were sold and 3,30,436 tractors were sold. These vehicles will contribute to scope 3 emissions under this category.

### **End of life treatment of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

835053.57

### **Emissions calculation methodology**

To get a rough estimate of the scope 3 emissions of “End of life treatment of sold products ” we calculated EOL figure for "XUV 500 -W10 model" sold by M&M through LCA Analysis using GABi6 software. This figure was then multiplied with passenger vehicle retail figures which contribute to 48% of vehicles sold by M&M in F19. Similarly, our Bolero maxi truck BMT LCC LCA was conducted with GABI6 software and EOL emission numbers was then multiplied with passenger vehicle retail figures which contribute to 40% of vehicles sold by M&M in F19, to estimate the total CO2-emissions under "End of life treatment of sold products" of M&M. We had conducted LCA study for the product "XUV 500 -W10 model"(highest offering model) by using GABi6 software of M/s. Think Step and its End of Life emission = -1.975 tCO2e per vehicle EoL emissions for passenger Vehciles= Total passenger Vehicles sold in F19 x (-1.975)= 2,54,351 x -1.975 = -495984.45 tCO2e our Bolero maxi truck BMT LCC LCA was conducted with GABI6 software and EOL emission is =-0.96 tCO2e per vehicle. Total commercial Vehicles sold in F19 x (-0.96)= 216802 x -0.96 = -339069.12 tCO2e We acknowledge limited accuracy due to the assumptions of “all passenger vehicles sold” has EOL emissions the same as XUV 500 W10 model. and "all commercial vehicle sold " has EOL emissions the same as BMT LCC.

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

0

### **Explanation**

M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. According to our estimates the scope 3 emissions of “End of life treatment of sold products” are below 5% of total M&M scope 3 emissions. Furthermore, M&M has limited influence on End of life treatment of sold products for which we do not have operational control. Nonetheless, we started Due to the relatively small amount of total scope 3 emissions in the category “End of life treatment of sold products” and limits to our operational influence we assess “End of life treatment of sold products” as not of relevance concerning M&M's Scope 3 emissions. To get a rough estimate of the scope 3 emissions of “End of life treatment of sold products ” we calculated EOL figure for "XUV 500 -W10 model" sold by M&M through LCA Analysis using GABi6 software. This figure was then multiplied with passenger vehicle retail figures which contribute to 48% of vehicles sold by M&M in F19. Similarly, our Bolero maxi truck BMT LCC LCA was conducted with GABI6 software and EOL emission numbers was then multiplied with passenger vehicle retail figures which contribute to 40% of vehicles sold by M&M in F19, to estimate the total CO2-emissions under "End of life treatment of sold products" of M&M. We acknowledge limited accuracy due to the assumptions of “all passenger vehicles sold” has EOL emissions the same as XUV 500 W10 model. and "all commercial vehicle sold " has EOL emissions the same as BMT LCC.

### **Downstream leased assets**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

80000

### **Emissions calculation methodology**

We did not have full data for Downstream leased assets during the reporting period. hence Scope 3 emissions under Downstream leased assets category is estimated on a sampling basis and plan to calculate the same in detail in the next reporting year We have Area offices & Regional stockyards (RSO) on lease and have operational control. Both Area offices and RSO's make use of Electricity for office work & Lighting application. Electricity bills for sample area offices & RSO's have been assessed an average usage of electricity per area office & RSO's is calculated and estimated emissions from Downstream leased assets are calculated. i.e. 80000 t CO2e per annum. The total Carbon footprint from Downstream leased assets = Average area office emissions x No. of area offices on Lease + Average RSO emissions x No. of RSO on Lease.

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

0

### **Explanation**

We did not have full data for Downstream leased assets during the reporting period. hence Scope 3 emissions under Downstream leased assets category is estimated on a sampling basis and plan to calculate the same in detail in the next reporting year M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. It is estimated based on internal calculations that scope 3 emissions from this category are less than 1% of total scope 3 emissions.

### **Franchises**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

126072

### **Emissions calculation methodology**

M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. According to our estimates the scope 3 emissions of “Franchises” are below 2% of total M&M scope 3 emissions. Furthermore, M&M has limited influence on M&M dealerships, for which we do not have operational control. Nonetheless, we started raising awareness of resource- and CO2-matters amongst our independent dealer network, by launching a sustainability initiative within the sales and marketing division of the M&M. Part of this initiative is a National dealer competition on ‘sustainability leadership’ among our entire dealer network. Due to the relatively small amount of total scope 3 emissions in the category “Franchises” and limits to our operational influence, we assess “Franchises” as not of particular relevance concerning M&M's Scope 3 emissions. To get a rough estimate of the scope 3 emissions of “Franchises” we calculated the intensity figure for CO2 emissions/per automobile sold in M&M owned dealerships in India, relying on directly monitored information on CO2-emissions. This intensity figure was then multiplied with global retail figures, excluding the retails of M&M owned dealerships, to estimate the total CO2-emissions of M&M's independent dealership network.

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

100

### **Explanation**

M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. According to our estimates the scope 3 emissions of “Franchises” are below 2% of total M&M scope 3 emissions. Furthermore, M&M has limited influence on M&M dealerships, for which we do not have operational control. Nonetheless, we started raising awareness of resource- and CO2-matters amongst our independent dealer network, by launching a sustainability initiative within the sales and marketing division of the M&M. Part of this initiative is a National dealer competition on ‘sustainability leadership’ among our entire dealer network. Due to the relatively small amount of total scope 3 emissions in the category “Franchises” and limits to our operational influence, we assess “Franchises” as not of particular relevance concerning M&M's Scope 3 emissions. To get a rough estimate of the scope 3 emissions of “Franchises” we calculated the intensity figure for CO2 emissions/per automobile sold in M&M owned dealerships in India, relying on directly monitored information on CO2-emissions. This intensity figure was then multiplied with global retail figures, excluding the retails of M&M owned dealerships, to estimate the total CO2-emissions of M&M's independent dealership network.

### **Investments**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

M&M focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total M&M scope 3 emissions and 2) the influence of M&M on Emission Reductions. According to our estimates, the scope 3 emissions from “Investments” are significantly below 5% of the total M&M scope 3 emissions. Due to the low amount of emissions in relation to the total M&M scope 3 emissions, the scope 3 category “Investments” is not of substantial relevance. To estimate the emissions we analysed in a first step all assets and identified those with material emissions (companies in the transportation and tractor production sector, along with office at Worli (Corporate center) The emissions from the relevant assets were excluded since the emissions are already accounted for in our scope 1 and 2 emissions, respectively in the scope 3 category “use of sold products”

### **Other (upstream)**

### **Evaluation status**

Not evaluated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

### **Other (downstream)**

### **Evaluation status**

Not evaluated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

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

<Not Applicable>

### **Explanation**

## **C6.7**

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

No

## **C6.10**

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

### **Intensity figure**

5.225e-7

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

280120

### **Metric denominator**

unit total revenue

### **Metric denominator: Unit total**

536140000000

### **Scope 2 figure used**

Market-based

### **% change from previous year**

3.87

### **Direction of change**

Decreased

### **Reason for change**

Mahindra and Mahindra Ltd. comprises of - Auto Division (AD) - Nashik Plant 2 (AD) - Farm Division (FD) - Swaraj Division(SD) - Swaraj Foundry (SD) - Spares Business Unit(SBU) - Mahindra Research Valley(MRV) - Corporate Centre, Worli Mumbai (CC) - Mahindra Two Wheeler Division (MTWD) F2019 Intensity Metric: 0.0000005225 tCO2e/ INR 3.87% REDUCED w.r.t. F2018 F2019 Numerator: M&M's Scope 1+2 emissions (Market based) : 280,120 tCO2e F2019 Denominator: Unit total revenue: INR 536,140,000,000/- Rise of 8.43% over previous for year. F2018 Intensity Metric: 0.0000005435 tCO2e /INR F2018 Numerator: M&M's Scope 1+2 emissions (Market based) : 2,68,727 tCO2e F2018 Denominator: Unit total revenue: INR 4,94,45,00,00,000/- Rise of 4.35% over previous for year. However, not all locations contribute to revenue generation directly, hence metric of Intensity = t CO2e / unit of total revenue is NOT RELEVANT, Hence, we measure the relevant metric as follows: 1) For Automotive division tCO2e /Equivalent Vehicle produced (44%) 2) For Farm +Swaraj Division tCO2e /Equivalent Tractors produced , (43%) both Metrics combined represent 87% of total Gross Scope 1+2 emissions. (t CO2e)

### **Intensity figure**

0.191

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

123060

### **Metric denominator**

Other, please specify (Equivalent Vehicles produced in Automotive division)

### **Metric denominator: Unit total**

644212

### **Scope 2 figure used**

Market-based

### **% change from previous year**

3.26

### **Direction of change**

Increased

### **Reason for change**

F19 Automotive Division contributes to 44% of M&M Emissions Reason for increase in Scope 1+2 combined emission: We have widened the scope of reporting with the inclusion of Mahindra Two Wheeler Division which was previously a subsidiary and has become a part of M&M Ltd in the year 2018 which has also lead to an increase in Emissions. There was an extraordinary consumption of diesel for testing of new products prior to launch. 4 COMPLETELY NEW platforms (Marrazzo, XUV300, Alturas G4, JAWA) were launched in one year which is a very rare occurrence. In addition, there were 5 other product launches/ refreshes. Calculations: F19 Automotive Division Metric numerator (Gross global combined Scope 1 and 2 emissions) = 123,060 tCO2e Metric denominator: Unit total = Unit of Production = Equivalent Vehciles produced =644,212 Nos F19 Intensity = 123,060 tCO2e/ 644,212 Nos = 0.191 tCO2e F18 Automotive Division Metric numerator (Gross global combined Scope 1 and 2 emissions) = 112,843 tCO2e Metric denominator: Unit total = Unit of Production = Equivalent Vehciles produced =608,807 Nos F18 Intensity = 112,843 tCO2e/ 608,807 Nos = 0.185 tCO2e Change in F19 against F18 = (0.185-0.191)/0.185 = 3.26% i.e. Increase in Specific GHG Emissions by 3.26% per Equivalent Vehicle produced. Note: Equivalent Vehicle Calculation methodology revised in F19 hence F18 Equivalent Vehicle numbers revised accordingly.

### **Intensity figure**

0.177

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

90653

### **Metric denominator**

Other, please specify (Equivalent Tractors produced in Farm Equivalent + Swaraj division)

### **Metric denominator: Unit total**

512739

### **Scope 2 figure used**

Market-based

### **% change from previous year**

7.2

### **Direction of change**

Decreased

### **Reason for change**

F19 Farm Equivalent + Swaraj Division contributes to 43% of M&M Emissions Reason for the decrease in Scope 1+2 combined emission: We have implemented Energy efficiency projects and increased the Renewable Power by setting up 2.1MW windmill & 2MWp Solar added within plant premises for CAPTIVE use. Calculations: F19 Farm Equivalent + Swaraj Division Metric numerator (Gross global combined Scope 1 and 2 emissions) = 90,653 tCO2e Metric denominator: Unit total = Unit of Production = Equivalent Vehicles produced = 512739 Nos F19 Intensity = 90,653 tCO2e/ 512739 Nos = 0.177 tCO2e F18 Farm Equivalent + Swaraj Division Metric numerator (Gross global combined Scope 1 and 2 emissions) = 93,030 tCO2e Metric denominator: Unit total = Unit of Production = Equivalent Vehicles produced = 488,478 Nos F18 Intensity = 93,030 tCO2e/ 488,478 Nos = 0.190 tCO2e Change in F19 against F18 = (0.190-0.177)/0.190 = 7.2% i.e. Decrease in Specific GHG Emissions by 7.2% per Equivalent tractors produced.

## **C7. Emissions breakdowns**

## **C7.1**

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

Yes

## **C7.1a**

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

|  |  |  |
| --- | --- | --- |
| **Greenhouse gas** | **Scope 1 emissions (metric tons of CO2e)** | **GWP Reference** |
| CO2 | 45635 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| CH4 | 44 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| N2O | 89 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| HFCs | 0 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| PFCs | 0 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| SF6 | 0 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| NF3 | 0 | IPCC Fifth Assessment Report (AR5 – 100 year) |

## **C7.2**

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

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| India | 45768 |

## **C7.3**

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

By business division

By facility

By activity

## **C7.3a**

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

|  |  |
| --- | --- |
| **Business division** | **Scope 1 emissions (metric ton CO2e)** |
| AD-Automotive Divison | 20466 |
| FD-Farm divison | 12647 |
| SD-Swaraj Division | 5196 |
| SBU - Spares Business Unit | 154 |
| MRV - Mahindra Research Valley | 5794 |
| Worli Mumbai (CC) | 111 |
| Mahindra Two wheeler Division (MTWD) | 189 |
| Nashik Tool & Die plant | 29.1 |
| Swaraj Foundry ( Mohali) | 1184 |

## **C7.3b**

### **(C7.3b) Break down your total gross global Scope 1 emissions by business facility.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Facility** | **Scope 1 emissions (metric tons CO2e)** | **Latitude** | **Longitude** |
| Haridwar (AD) | 181 | 29.94791 | 78.16025 |
| Igatpuri (AD) | 967 | 19.69511 | 73.56215 |
| Kandivli (AD) | 7209 | 19.204529 | 72.851995 |
| Nashik Plant 1(AD) | 9041 | 19.98333 | 73.8 |
| Nashik Tool & Die plant | 29.1 | 20.002469 | 73.726445 |
| Zaheerabad (AD) | 3067 | 17.68068 | 77.61164 |
| Jaipur (FD) | 898 | 26.92557 | 75.80637 |
| Kandivli (FD) | 3409 | 17.86667 | 73.23333 |
| Nagpur (FD) | 3156 | 21.15707 | 79.08218 |
| Rudrapur (FD) | 2340 | 26.4461 | 83.61473 |
| Zaheerabad (FD) | 2844 | 17.68068 | 77.61164 |
| Swaraj Foundry ( Mohali) | 1184 | 30.839594 | 76.670496 |
| Swaraj Plant 1 (Mohali) | 2292 | 30.721123 | 76.710099 |
| Swaraj Plant 2 (Mohali) | 2903 | 30.70347 | 76.659055 |
| Bhiwandi (SBU) | 17.7 | 19.29711 | 73.0635 |
| Hyderabad (SBU) | 2.87 | 17.39487 | 78.47076 |
| Jaipur (SBU) | 21.5 | 26.92557 | 75.80637 |
| Kanhe (SBU) | 93.6 | 18.727736 | 73.654434 |
| Vadgoan (SBU) | 17.8 | 18.7419 | 73.63508 |
| Mahindra Research Valley, Chennai | 5794 | 13.08362 | 80.28252 |
| Worli Mumbai (CC) | 111 | 19.016671 | 72.816661 |
| Mahindra Two wheeler Division (MTWD) | 189 | 22.16616 | 74.73237 |

## **C7.3c**

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

|  |  |
| --- | --- |
| **Activity** | **Scope 1 emissions (metric tons CO2e)** |
| Offices @ Corporate center Worli | 111 |
| Manufacturing @ Auto Division- 5 plants @ Farm Division - 5 plants @ Swaraj Foundry @ Swaraj Division - 2 plants @ Nashik Tool and Die plant @ Pithampur (MTWD) | 39710 |
| Warehouses 5 Warehouses in Spare Business Unit | 154 |
| Research and Development center @ MRV Chennai | 5794 |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gross Scope 1 emissions, metric tons CO2e** | **Net Scope 1 emissions , metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Electric utility generation activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 20466 | <Not Applicable> | The Reported Gross Scope 1 emissions, 20,466 metric tons CO2e is for the Automotive division which falls under the Transport sector. Automotive division contributes to 44% of total Gross Scope 1 emissions, metric tons CO2e. Emissions from Farm Equipment & Swaraj Division contributing to 43% + Spares Business Unit 1% Mahindra Research Valley 10% Nashik Plant 2 (AD) 1% Corporate Center + MTWD 1% of total emissions are not considered here because this operations are different than Transport sector. |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C7.5**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country/Region** | **Scope 2, location-based (metric tons CO2e)** | **Scope 2, market-based (metric tons CO2e)** | **Purchased and consumed electricity, heat, steam or cooling (MWh)** | **Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)** |
| India | 247948 | 234351 | 302384 | 15878 |

## **C7.6**

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

By business division

By facility

By activity

## **C7.6a**

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

|  |  |  |
| --- | --- | --- |
| **Business division** | **Scope 2, location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| AD-Automotive Divison | 110041 | 102596 |
| FD-Farm divison | 49609 | 44410 |
| SD- Swaraj divison | 28384 | 28384 |
| Spares Business Unit | 1826 | 1826 |
| Mahindra Research Valley | 24101 | 23159 |
| Worli Mumbai (CC) | 2243 | 2232 |
| Mahindra Two wheeler Division (MTWD) | 1017 | 1017 |
| Swaraj Foundry ( Mohali) | 28641 | 28641 |
| Nashik Tool & Die plant | 2085 | 2085 |

## **C7.6b**

### **(C7.6b) Break down your total gross global Scope 2 emissions by business facility.**

|  |  |  |
| --- | --- | --- |
| **Facility** | **Scope 2 location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| Haridwar (AD) | 1310 | 1310 |
| Igatpuri (AD) | 6044 | 5750 |
| Kandivli (AD) | 54589 | 52292 |
| Nashik Plant 1(AD) | 37355 | 35415 |
| Nashik Tool & Die plant | 2085 | 2085 |
| Zaheerabad (AD) | 10743 | 7830 |
| Jaipur (FD) | 2416 | 1927 |
| Kandivli (FD) | 17327 | 15417 |
| Nagpur (FD) | 16987 | 15299 |
| Rudrapur (FD) | 4769 | 4769 |
| Zaheerabad (FD) | 8109 | 6998 |
| Swaraj Foundry (Mohali) | 28641 | 28641 |
| Swaraj Plant 1 (Mohali) | 13241 | 13241 |
| Swaraj Plant 2 (Mohali) | 15144 | 15144 |
| Bhiwandi (SBU) | 327 | 327 |
| Hyderabad (SBU) | 32 | 32 |
| Jaipur (SBU) | 651 | 651 |
| Kanhe (SBU) | 728 | 728 |
| Vadgoan (SBU) | 88 | 88 |
| Mahindra Research Valley, Chennai | 24101 | 23159 |
| Worli Mumbai (Corporate Center) | 2243 | 2232 |
| Pithampur (MTWD) | 1017 | 1017 |

## **C7.6c**

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

|  |  |  |
| --- | --- | --- |
| **Activity** | **Scope 2, location-based emissions (metric tons CO2e)** | **Scope 2, market-based emissions (metric tons CO2e)** |
| Offices @ Corporate center Worli | 2243 | 2232 |
| Manufacturing @ Auto Division- 5 plants @ Farm Division - 5 plants @ Swaraj Foundry @ Swaraj Division - 2 plants @ Nashik Tool and Die plant @ Pithampur (MTWD) | 219778 | 207134 |
| Warehouses 5 Warehouses in Spare Business Unit | 1826 | 1826 |
| Research and Development center MRV Chennai | 24101 | 23159 |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Scope 2, location-based, metric tons CO2e** | **Scope 2, market-based (if applicable), metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | 110041 | 102596 | The Reported Gross Scope 2 emissions Location based, 110,041 metric tons CO2e & Scope 2 Market based 102,596 metric tons CO2e is for the Automotive division which falls under the Transport sector. Automotive division contributes to 44% of total Gross Scope 1 +2 emissions, metric tons CO2e. Emissions from Farm Equipment & Swaraj Division contributing to 43% + Spares Business Unit 1% Mahindra Research Valley 10% Nashik Plant 2 (AD) 1% Corporate Center + MTWD 1% of total emissions are not considered here because this operations are different than Transport sector. |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C-TO7.8**

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

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000156

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

8332538.76

### **Metric denominator**

p.km

### **Metric denominator: Unit total**

53413710000

### **% change from previous year**

1.96

### **Vehicle unit sales in reporting year**

254351

### **Vehicle lifetime in years**

15

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

10000

### **Load factor**

1.4 person per Vehicle

### **Please explain the changes, and relevant standards/methodologies used**

The methodology used for calculation is given below: F18 Calculations: Numerator Calculations: No of Passenger Vehicles sold 248859 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 158 gCO2e/km A load factor of 1.40 persons per vehicle Lifetime emissions 8257141.62 tCO2e ---- Numerator F18 Denominator calculations No of Passenger Vehicles sold 248859 Distance travelled in a year 10000 Vehicle life 15 years A load factor of 1.40 persons per vehicle Passenger km covered = No of Vehicle sold x Distance traveled in a year x vehicle life x load factor persons per vehicle Passenger km covered = 52260390000 p.Km ---- Denominator F18 Metric F18 = 0.000158 tCO2e / p.Km calculated as given above Metric F19 = 0.000153 tCO2e / p.Km calculated as given below: % Change F19 Vs F18 = (Metric F19 - Metric F18)/Metric F18 = (0.000156 -0.000153)/0.000153 = 1.96% (Due to change in Vehicle emission norms from BS III to BS IV w.e.f. 1st Apr 2018) F19 Calculations: Numerator Calculations: No of Passenger Vehicles sold 236130 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 153 gCO2e/km A load factor of 1.40 persons per vehicle Lifetime emissions 7586856.9 tCO2e ----- Numerator F19 Denominator calculations No of Passenger Vehicles sold 254351 Nos Distance traveled in a year 10000 km Vehicle life 15 years A load factor of 1.40 persons per vehicle Passenger km covered = No of Vehicle sold x Distance traveled in a year x vehicle life x load factor persons per Vehicle Passenger km covered = 53413710000 p.Km ---- Denominator F19 Metric F19 0.000156 tCO2e / p.Km

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000363

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

1369123

### **Metric denominator**

t.km

### **Metric denominator: Unit total**

3768991098

### **% change from previous year**

-2.78

### **Vehicle unit sales in reporting year**

314741

### **Vehicle lifetime in years**

15

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

10000

### **Load factor**

As per the reports published at https://www.transportmeasures.org/en/wiki/manuals/road/vehicle-types-and-characteristics/ Average 20% Load factor, is observed for Light commercial vehicle - Pick-up and Vans.

### **Please explain the changes, and relevant standards/methodologies used**

As per the reports published at https://www.transportmeasures.org/en/wiki/manuals/road/vehicle-types-and-characteristics/ Average 20% Load factor, is given for Light commercial vehicle - Pick-up and Vans. F18 Numerator Calculations :No of Vehicles x Distance traveled x Vehicle life x Load factor x emissions per km = \_\_\_tCO2 No of CV's sold 271427 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 147 gCO2/km Load factor 20% Lifetime emissions 1196993.07 tCO2--- Numerator F18 F18 Denominator calculations: No of Vehicles x Distance traveled x Vehicle life x Load factor x Average Weight carried by vehicle = \_\_\_\_\_ t.Km No of CV's sold 271427 Distance traveled in a year 10000 Vehicle life 15 Load factor 20% tonnage per Vehicle 2.54 tonnes. ( Weighted average of Commercial vehicles sold in previous reporting year F18) F18 Denominator = 3203552177 t.Km F18 Metric calculations = F18 Numerator/ F18Denominator = 1196993.07 tCO2 / 3203552177 t.Km Metric F18 = 0.000373 tCO2/ t.Km for previous reporting year (F18) Current year F19 Numerator: F19 Numerator Calculations No of CV's sold 314741 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 145 gCO2/km Load factor 20% Lifetime emissions = 1369123 tCO2 F17 Numerator F19 Denominator calculations No of CV's sold 314741 Distance traveled in a year 10000 Vehicle life 15 Load factor 20% tonnage per Vehicle 2.51 Weighted average of Commercial vehicles sold in the reporting year F19 Denominator = 3768991098 tKm Metric F19 = 0.00036326 tCO2/t.Km % Change F19 Vs F18 = (Metric F19-Metric F18)/ Metric F18 = (0.00036326 - 0.000373)/ 0.000373 = - 2.78% i.e. Reduction of 2.78% over previous year

## **C7.9**

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

Increased

## **C7.9a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption | 4515 | Decreased | 1.5 | In, FY 19 RE consumption = 15878 MWh= 13020 MtCO2e In FY 18 RE consumption = 10372=8505 MtCO2e The Change in emissions in FY19 against FY 18 = 13020-8505=4515 i.e Emission decreased by 4515 MtCO2e in FY 19 Our Gross global Scope 1+2 emissions = 293717 MtCO2e Thus change in RE consumption is 1.5 % of FY19 gross global emission |
| Other emissions reduction activities | 11172 | Decreased | 3.8 | In, FY 19 other emission reduction activities related to energy management = 11,172 MtCO2e in FY 19 Our Gross global Scope 1+2 emissions = 293717 MtCO2e Thus change due to other emission reduction activities is 3.8% of FY19 gross global emission |
| Divestment | 0 | No change | 0 | Not Applicable |
| Acquisitions | 0 | No change | 0 | Not Applicable |
| Mergers | 0 | No change | 0 | Not Applicable |
| Change in output | 4080 | Decreased | 1.4 | Scope 1+2 avoided due to change in output for divisions listed below: Auto Division Farm Division Swaraj Division Swaraj Foundry (Mohali) Nashik Tool and Die Plant Spares Business Unit was calculated using difference in specific GHG emission (Scope 1+2-MtCO2e) for FY 19 against FY 18 MULTIPLIED by Output of all the divisions listed above. |
| Change in methodology | 0 | No change | 0 | Not Applicable |
| Change in boundary | 1206 | Increased | 0.4 | With inclusion of Mahindra Two Wheeler Division into the reporting boundary from FY 19 there is an increase in emission by 1206 MtCO2e which is 0.4% of total Scope 1+2 emission of M&M Limited. |
| Change in physical operating conditions | 0 | No change | 0 | Not Applicable |
| Unidentified | 0 | No change | 0 | Not Applicable |
| Other | 22723 | Increased | 8 | There was extra ordinary consumption of diesel for testing of new products prior to launch. 4 COMPLETELY NEW platforms (Marrazo, XUV300, Alturas G4, JAWA) were launched in one year which is very rare occurrence. In addition, there were 5 other product launches/ refreshes In, FY19 due to product launches, emissions increased by 22,723 MtCO2e in FY 19 Our Gross global Scope 1+2 emissions = 293717 MtCO2e This has caused increase of 8% in FY19 gross global emission. |

## **C7.9b**

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

Location-based

## **C8. Energy**

## **C8.1**

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

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

## **C8.2**

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

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

## **C8.2a**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total MWh** |
| Consumption of fuel (excluding feedstock) | HHV (higher heating value) | 0 | 202927 | 202927 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 5550 | 286506 | 292057 |
| Consumption of purchased or acquired heat | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired steam | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 10327 | <Not Applicable> | 10327 |
| Total energy consumption | <Not Applicable> | 15878 | 489434 | 505311 |

## **C8.2b**

### **(C8.2b) Select the applications of your organization’s consumption of fuel.**

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

## **C8.2c**

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

### **Fuels (excluding feedstocks)**

Diesel

### **Heating value**

HHV (higher heating value)

### **Total fuel MWh consumed by the organization**

48801

### **MWh fuel consumed for self-generation of electricity**

207.05

### **MWh fuel consumed for self-generation of heat**

48594

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Comment**

Diesel used for Industrial process - heating application =48594/48801=99.6% Diesel used for Electricity generation during a power outage =207/48801=0.04%

### **Fuels (excluding feedstocks)**

Liquefied Petroleum Gas (LPG)

### **Heating value**

HHV (higher heating value)

### **Total fuel MWh consumed by the organization**

30930

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

30700

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

230

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Comment**

LPG used for Industrial process - heating application (MWh)=30,700/30,930=99.26% LPG used for self-generation of cooling using Heatpump (MWh)=230/30,930=0.74%

### **Fuels (excluding feedstocks)**

Propane Liquid

### **Heating value**

HHV (higher heating value)

### **Total fuel MWh consumed by the organization**

31132

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

31132

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Comment**

LPG used for Industrial process - heating application (MWh)=31,132/31,132=100%

### **Fuels (excluding feedstocks)**

Natural Gas

### **Heating value**

HHV (higher heating value)

### **Total fuel MWh consumed by the organization**

87060

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

87060

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Comment**

Natural Gas used for Industrial process - heating application (MWh)=87,060/87,060=100%

### **Fuels (excluding feedstocks)**

Petrol

### **Heating value**

HHV (higher heating value)

### **Total fuel MWh consumed by the organization**

5004

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

5004

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

0

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Comment**

Petrol used for 95.5% Engine testing - heating application (MWh) + Petrol used in vehicles owned by company 224MWh = 4.5% reported as heating application =5,004/5,004=100%

## **C8.2d**

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

### **Diesel**

### **Emission factor**

2.64463

### **Unit**

kg CO2e per liter

### **Emission factor source**

2006 IPCC Guidelines for National Greenhouse Gas Inventories-Volume 2 (Energy)

### **Comment**

### **Liquefied Petroleum Gas (LPG)**

### **Emission factor**

2980

### **Unit**

kg CO2e per metric ton

### **Emission factor source**

2006 IPCC Guidelines for National Greenhouse Gas Inventories-Volume 2 (Energy)

### **Comment**

### **Natural Gas**

### **Emission factor**

0.00215

### **Unit**

metric tons CO2e per m3

### **Emission factor source**

0.0021542 Mt CO2e per m3 as per 2006 IPCC Guidelines for National Greenhouse Gas Inventories-Volume 2 (Energy)

### **Comment**

0.0021542 Mt CO2e per m3

### **Petrol**

### **Emission factor**

2.30249

### **Unit**

kg CO2e per liter

### **Emission factor source**

2006 IPCC Guidelines for National Greenhouse Gas Inventories-Volume 2 (Energy)

### **Comment**

2.3024925 kg CO2e per liter

### **Propane Liquid**

### **Emission factor**

2982.179

### **Unit**

kg CO2e per metric ton

### **Emission factor source**

2006 IPCC Guidelines for National Greenhouse Gas Inventories-Volume 2 (Energy)

### **Comment**

## **C8.2e**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Total Gross generation (MWh)** | **Generation that is consumed by the organization (MWh)** | **Gross generation from renewable sources (MWh)** | **Generation from renewable sources that is consumed by the organization (MWh)** |
| Electricity | 16967 | 207.05 | 16760 | 15878 |
| Heat | 202490 | 202490 | 0 | 0 |
| Steam | 0 | 0 | 0 | 0 |
| Cooling | 230 | 230 | 0 | 0 |

## **C8.2f**

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

### **Basis for applying a low-carbon emission factor**

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

### **Low-carbon technology type**

Solar PV

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

Asia Pacific

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

2512

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

0

### **Comment**

We have Solar PV installations within premises of Igatpuri (AD) - 336KWp Kandivli (AD) - 200 KWp Nashik Plant 1(AD) - 300 KWp Jaipur (FD)- 600 KWp Mahindra Research Valley -720 KWp Corporate Center - 6 KWp For the reporting period, 2512 MWh Solar Power was generated and consumed.

### **Basis for applying a low-carbon emission factor**

Energy attribute certificates, Renewable Energy Certificates (RECs)

### **Low-carbon technology type**

Solar PV

Wind

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

Asia Pacific

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

704

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

0

### **Comment**

For the reporting period, Renewable Energy Certificates were procured for RPO compliance @ AD Kandivali & AD Nashik Plant-1. As per GHG protocol emission factor for Renewable Power is ZERO kg CO2e/ Kwh

### **Basis for applying a low-carbon emission factor**

Power Purchase Agreement (PPA) with energy attribute certificates

### **Low-carbon technology type**

Wind

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

Asia Pacific

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

7816

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

0

### **Comment**

For the reporting period, Renewable Energy was generated and consumed @ AD Kandivali & AD Nashik Plant-1 from its CAPTIVE 2.1MW windmill installed at Jath- Sangli district in Maharashtra, India and FD Kandivali & FD Nagpur from its CAPTIVE 2.1MW windmill installed at Aurangabad district in Maharashtra, India As per GHG protocol emission factor for Renewable Power is ZERO kg CO2e/ Kwh

### **Basis for applying a low-carbon emission factor**

Power Purchase Agreement (PPA) with energy attribute certificates

### **Low-carbon technology type**

Solar PV

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

Asia Pacific

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

5550

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

0

### **Comment**

FD Zaheerabad & AD Zaheerabad from 2.4MW Solar plant installed at Medak district in Telangana, India by M/s. Mahindra Susten. Where in M&M Ltd Zaheerabad plants have entered into 25-year Power Purchase Agreement (PPA) with energy attribute certificates to use entire(100%) of the Solar Power generated by Mahindra Susten As per GHG protocol emission factor for Renewable Power is ZERO kg CO2e/ Kwh

## **C-TO8.4**

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

### **Activity**

Light Duty Vehicles (LDV)

### **Metric figure**

156

### **Metric numerator**

Other, please specify (gm/km is the metric)

*CAFE emission improvement*

### **Metric denominator**

Use phase: Vehicle.km

### **Metric numerator: Unit total**

156

### **Metric denominator: Unit total**

1

### **% change from previous year**

-1.27

### **Please explain**

The average CO2 efficiency has IMPROVED from (F18) 158 to (F19) 156 gms of CO2/Km and 6 gms Lesser than CAFÉ limit of 162 gms162gm/ Km for Passenger Vehicles. The above figures are as per the Indian Driving Cycle (IDC) equivalent to NEDC. CAFE monitoring implemented in India from F17 onwards as per IDC. average fleet CO2 monitoring is done by calculating the sales-weighted average of CO2 for M1 category of vehicles. Following are the measure to improve the Average CO2-efficiency: 1) Micro-Hybrid System provides automatic fuel saving on every drive. It switches off the engine when it idles for a preset duration and switches the engine on, the instant your leg presses the clutch pedal. 2) Light weighting of the products 3) Life Cycle assessments F18 = 158 gm/km F19 = 156 gm/km Change (F19 Vs F18) = (158-156)/158 = -1.27% i.e. IMPROVEMENT of 1.27% over the previous year.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric figure**

145

### **Metric numerator**

Other, please specify (gm/km is the metric)

### **Metric denominator**

Use phase: Vehicle.km

### **Metric numerator: Unit total**

145

### **Metric denominator: Unit total**

1

### **% change from previous year**

-1.36

### **Please explain**

The average CO2 efficiency has IMPROVED from (F18) 147 to (F19) 145 gms of CO2/Km for Commercial Fleet of Vehicles. The above figures are as per the Indian Driving Cycle (IDC) equivalent to NEDC. CAFE monitoring implemented in India from F17 onwards as per IDC. average fleet CO2 monitoring is done by calculating the sales-weighted average of CO2 for M1 category of vehicles. Following are the measure to improve the Average CO2-efficiency: 1) Micro-Hybrid System provides automatic fuel saving on every drive. It switches off the engine when it idles for a preset duration and switches the engine on, the instant your leg presses the clutch pedal. 2) Light weighting of the products 3) Life Cycle assessments F18 = 147 gm/km F19 = 145 gm/km Change (F19 Vs F18) = (147-145)/147 = -1.36% i.e. IMPROVEMENT of 1.36% over the previous year.

## **C9. Additional metrics**

## **C9.1**

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

### **Description**

Waste

*Absolute Solid Waste Disposed by the company as defined below: Company's total solid waste disposed (i.e. not recycled, reused or incinerated waste for energy recovery) for the part of our company's operations for which we have a reliable and auditable data acquisition and aggregation system. All Solid waste measured in metric tonnes.*

### **Metric value**

3225

### **Metric numerator**

Recycling of our Hazardous waste

### **Metric denominator (intensity metric only)**

This is an absolute metric, hence no denominator

### **% change from previous year**

67.8

### **Direction of change**

Increased

### **Please explain**

Company's total solid waste disposed of (i.e. not recycled, reused or incinerated waste for energy recovery) for the part of our company's operations for which we have a reliable and audit-able data acquisition and aggregation system. The company signed agreements with Extended Producer Responsibility Organizations (EPRO) recognized by Pollution Control Boards for 100% integral Plastic Waste Management. These agreements include the plastic waste generated at the premises of suppliers and dealers of our Company. This year we have begun recycling of our Hazardous Waste instead of sending it to landfill or incineration. Some locations are now sending their Hazardous Waste to authorised recycler and some are sending for co-processing to cement industries. Other sites that are currently sending to the landfill are awaiting relevant consents/ approvals for co-processing. Total Hazardous Waste Generated in the current year was 4800 Metric Tonnes Vs 3695 Metric Tonnes in the previous year(F18) and out of which in F19 3225 Metric tonnes was recycled against 1922 Metric Tonnes recycled in F18. % Change in F19 Vs F18 = (3225-1922)/1922 = 67.8% Increase in RECYCLING in F19 Vs F18. Total non- hazardous waste is also Recycled through authorised recycler approved by respective state pollution control boards.

### **Description**

Waste

*Reduction of Waste Generated: Already being scarce, natural resources going to waste is a double setback. Mahindra as a Group is committed to minimise the amount of waste that enters landfills from our operations, leading to more savings and less harm to the environment. Minimum use of materials | reduction in waste generated | usage of waste as a valuable resource fostering a circular economy and responsible disposal; waste management is a comprehensive process for us. Eight locations across M&M are certified as Zero Waste to Landfill (ZWL) by M/s Intertek, USA. Zero Waste to Landfill certification = Waste diverted rate from Landfill greaterthan 99 %*

### **Metric value**

9

### **Metric numerator**

F19 8 M&M plants certified ZERO WASTE TO LANDFILL

### **Metric denominator (intensity metric only)**

This is an absolute metric, hence no denominator

### **% change from previous year**

900

### **Direction of change**

Increased

### **Please explain**

Our initiatives towards minimizing the amount of waste that enters landfills from our operations are bearing results, as seen for the locations below: LOCATION-WISE DIVERSION FROM LANDFILL M&M AD Haridwar 99.80% M&M SD Swaraj (Plant1) 99.27% M&M AD Zaheerabad 99.27% M&M FD Zaheerabad 99.98% M&M FD Rudrapur 99.97% M&M FD Nagpur 99.54% M&M FD Jaipur 99.26% M&M FD Kandivali 99.18% F18 M&M IGATPURI was the first plant to be Certified as ZERO WASTE TO LANDFILL. F19 Additional above Eight locations across M&M are certified as Zero Waste to Landfill (ZWL) by M/s Intertek, USA. The company signed agreements with Extended Producer Responsibility Organizations (EPRO) recognized by Pollution Control Boards for 100% integral Plastic Waste Management. These agreements include the plastic waste generated at premises of suppliers and dealers of your Company.

## **C-TO9.3/C-TS9.3**

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

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Vehicle using LPG/CNG

### **Metric figure**

6390

### **Metric unit**

Units

### **Explanation**

For months now, as the government has waffled on a plan to kick start electric vehicles (EVs) in India, But it will all rest on a single factor: AFFORDABILITY. This eagerness for CNG stems from the company’s expertise in this fuel segment, combined with the unpredictable trajectory of battery prices and the peculiarity of the automobile market itself. “The Indian market is different from any other market in the world and dominates small and or affordable vehicles.” Given the current level of battery prices, converting existing vehicles into EVs would increase the cost of the vehicles. “So, affordability becomes a huge, huge problem.” And that is why we are bullish on CNG, a fuel cleaner than diesel, and one that M&M already has expertise in. “That technology already exists. The cost increase of a CNG car compared to a patrol car is very small, around Rs 40,000, “So customers buy it happily.” M&M Sold 5,119 CNG vehicles in reporting year a number that could be much higher if the fuel was more readily available, the company feels. New Delhi, for instance, has around a million CNG vehicles but fewer than 450 refilling stations. “The problem is we can increase manufacturing subject to the increase in the distribution of CNG becoming wider. We can’t ask a customer to buy a CNG car and then stand for one hour to refill,” The problem becomes more acute for inter-city travel since CNG is only available in some 1,200 stations across a dozen Indian states, servicing up to three million vehicles. So, Company is now in conversation with the government and oil companies to widen the CNG network. “They expand the sales outlets, we expand the production of CNG Vehicle's.”

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Battery electric vehicle (BEV)

### **Metric figure**

10276

### **Metric unit**

Units

### **Explanation**

For months now, as the government has waffled on a plan to kick start electric vehicles (EVs) in India, But it will all rest on a single factor: AFFORDABILITY. This eagerness for EV's stems from the company’s expertise and dominance in this fuel segment, combined with the unpredictable trajectory of battery prices and the peculiarity of the automobile market itself. Company is the pioneer for Electric Vehicles (EVs) in India, and for the year under review, sold 10,276 EVs (1,811 four-wheelers and 8,465 three-wheelers) as against 4,026 EVs in the previous year This growth is supported by the Governments’ thrust on adopting EVs, and sustained effort by your Company in working with various stakeholders, especially fleet operators.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Conventional hybrid

### **Metric figure**

1357

### **Metric unit**

Units

### **Explanation**

This eagerness for Conventional Hybrid vehicles stems from the company’s expertise in this fuel segment, combined with the unpredictable trajectory of customer preference for fuel-efficient vehicles and the peculiarity of the automobile market itself. “The Indian market is different from any other market in the world and has dominance of small and or affordable vehicles.” Conventional Hybrid technology reduces fuel consumption by up to 7% by assisting the engine with electric power during acceleration, automatically switching the engine off while the vehicle is stationary (start-stop) and re-using brake energy, which would otherwise be wasted.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Other, please specify (Hydrogen Vehicles)

### **Metric figure**

22

### **Metric unit**

Units

### **Explanation**

We note the Government’s technology-agnostic approach with the announcement of GST reduction (from 28% to 12% to 5%) on fuel cell vehicles, giving a boost to alternative fuels for mobility. In India’s vision of mobility 2030, all electrified vehicle technologies [xEVs] will remain relevant where EV would cover short distance commute, while HEV/PHV includes passenger cars and FCVs would be for buses/trucks. This new move would positively promote such FCV technology start-ups for the future, which is at a very nascent stage. Lower taxes will help faster adoption of electrification by gradually eliminating ICE over the period and improve customer acceptance in a phased manner. Such energy-saving and environment protection criteria should eventually become the basis for taxation." For one, Hydrogen cell vehicles can be refueled in a matter of minutes, compared to the conventional electric vehicle, which could take a couple of hours to recharge on standard charging. The fact that fuel cells are mainly reliant on Hydrogen, makes the technology even more tempting considering that Hydrogen is the single most abundant element in the atmosphere. The technology uses Hydrogen that can be carried in a tank in the car and fed into the fuel cell stack along with oxygen to create electricity and water, as a by-product. Filling it in vehicles is pretty much like petrol at stations but it’s the conversion and storage process that costs a bomb and has been holding back the implementation of this technology. We have produced 22 Hydrogen engines vehicles and are under a demonstration to Govt. of India and anticipate that they will be the vehicle of the future in India.

## **C-TO9.6/C-TS9.6**

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

### **Activity**

Light Duty Vehicles (LDV)

### **Investment start date**

April 1 2018

### **Investment end date**

March 31 2019

### **Investment area**

R&D

### **Technology area**

Electrification

### **Investment maturity**

Full/commercial-scale demonstration

### **Investment figure**

5000000000

### **Low-carbon investment percentage**

0-20%

### **Please explain**

Government of India’s scheme of FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles-Phase-II) w.e.f. 1 Apr'19 to promote electric vehicles on the road. For this, infrastructure is set up. This is going to increase the demand for M&M’s electric vehicles. 1% increase in revenue is equivalent to INR 3535292000/- M&M Limited is already in the business of manufacturing of Electric Vehicles. The Sales volume is picking up every year. Sales volume for electric vehicles F19 10,276 F18 (4026 Nos) compared to F17(1021 Nos). Further, R&D is being done to increase EV portfolio and enhance the product features including product efficiency i.e. more kilometer run on a single battery charge, fast charging, product design, etc. As the pioneer of electric vehicles and integrated mobility solutions in India, it has always been our endeavor to make electric vehicles more accessible and best suited for Indian conditions. The launch of the e-Alfa Mini in F18 is yet another step to provide an emission-free, green mode of safe intra-city transportation in the country. At Mahindra, we are aligned to the Government’s vision to become a 100% EV nation by 2030. True to the spirit of ‘Make-in-India’, we shall be at the forefront to lead this change along with the Government. F19 onwards portfolio comprises of : E-Verito: Silent, Smooth and Suave. India’s first electric Sedan!, E2O Plus : Zippy, compact and 100% electric – perfect for everyday city drive eSupro: Sturdy and Versatile, India’s first all-electric Cargo and Passenger Van eAlfa Mini: Redefining last-mile connectivity, Mahindra’s first electric Rickshaw, Treo 3wheeler rage: Mahindra lithium-ion battery-powered three-wheeler e-rickshaw Way ahead: - Investing in next-generation EV technologies including 380V powertrain, high efficiency drivetrain motors and local manufacturing of batteries. - Developing the EV versions of the KUV1OO and the XUV3OO

## **C10. Verification**

## **C10.1**

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

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

## **C10.1a**

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

### **Scope**

Scope 1

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf)

### **Page/ section reference**

The verification was conducted by KPMG INDIA Page 1/ Scope, Boundary and Limitations sections Page 2 / Conclusion section for the value of Scope 2 Page 1 & 2 / Assurance standard ISAE 3410: A limited assurance engagement in accordance with ISAE 3410 involves performing procedures to obtain evidence about the qualification of emissions and related information in the GHG statement.

### **Relevant standard**

ISAE 3410

### **Proportion of reported emissions verified (%)**

100

### **Scope**

Scope 2 market-based

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf)

### **Page/ section reference**

The verification was conducted by KPMG INDIA Page 1/ Scope, Boundary and Limitations sections Page 2 / Conclusion section for the value of Scope 2 Page 1 & 2 / Assurance standard ISAE 3410: A limited assurance engagement in accordance with ISAE 3410 involves performing procedures to obtain evidence about the qualification of emissions and related information in the GHG statement.

### **Relevant standard**

ISAE 3410

### **Proportion of reported emissions verified (%)**

100

## **C10.1b**

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

### **Scope**

Scope 3- at least one applicable category

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

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

### **Attach the statement**

[MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf)

### **Page/section reference**

The verification was conducted by KPMG INDIA in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements Page 1/ Scope, Boundary and Limitations sections Page 1 & 2 / Assurance standard ISAE 3410: A limited assurance engagement in accordance with ISAE 3410 involves performing procedures to obtain evidence about the qualification of emissions and related information in the GHG statement.

### **Relevant standard**

ISAE 3410

## **C10.2**

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

Yes

## **C10.2a**

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

[MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf)

|  |  |  |  |
| --- | --- | --- | --- |
| **Disclosure module verification relates to** | **Data verified** | **Verification standard** | **Please explain** |
| C4. Targets and performance | Year on year emissions intensity figure | The verification was conducted by KPMG INDIA in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements for a LIMITED level of verification. KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. | KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. The verification was conducted by KPMG in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements , for a LIMITED level of verification. KPMG carried out the following activities: • Desk review of Mahindra & Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra & Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1, Scope 2 and Scope 3 emissions reported for sample locations at a) Kandivali (AD) b) Kandivali (FD) c) Nagpur (FD) d) Swaraj Foundry e) Swaraj Plant-1 f) Jaipur, SBU  [MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf) |
| C6. Emissions data | Year on year change in emissions (Scope 2) | The verification was conducted by KPMG INDIA in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements for a LIMITED level of verification. KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. | KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. The verification was conducted by KPMG in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements , for a LIMITED level of verification. KPMG carried out the following activities: • Desk review of Mahindra & Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra & Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1, Scope 2 and Scope 3 emissions reported for sample locations at a) Kandivali (AD) b) Kandivali (FD) c) Nagpur (FD) d) Swaraj Foundry e) Swaraj Plant-1 f) Jaipur, SBU  [MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf) |
| C7. Emissions breakdown | Year on year change in emissions (Scope 1) | The verification was conducted by KPMG INDIA in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements for a LIMITED level of verification. KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. | KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. The verification was conducted by KPMG in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements , for a LIMITED level of verification. KPMG carried out the following activities: • Desk review of Mahindra & Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra & Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1, Scope 2 and Scope 3 emissions reported for sample locations at a) Kandivali (AD) b) Kandivali (FD) c) Nagpur (FD) d) Swaraj Foundry e) Swaraj Plant-1 f) Jaipur, SBU  [MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf) |
| C10. Verification | Other, please specify (Scope 1, MArket based Scope 2 and Scope 3 alteast one applicable category ) | The verification was conducted by KPMG INDIA in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements for a LIMITED level of verification. KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. | KPMG verification engagement included Limited level of verification of Greenhouse Gas Inventory (‘the GHG Inventory’) i.e. Scope 1, Scope 2 and Scope 3 emissions data as defined under World Business Council on Sustainable Development (WBCSD) and World Resource Institute (WRI) GHG Protocol covering the period 1st April 2018 to 31st March 2019 and pertaining to operations at 22 locations in India. The verification was conducted by KPMG in accordance with the requirements set out in International Standard on Assurance Engagements (ISAE) 3410, Assurance Engagements on Greenhouse Gas Statements , for a LIMITED level of verification. KPMG carried out the following activities: • Desk review of Mahindra & Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra & Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1, Scope 2 and Scope 3 emissions reported for sample locations at a) Kandivali (AD) b) Kandivali (FD) c) Nagpur (FD) d) Swaraj Foundry e) Swaraj Plant-1 f) Jaipur, SBU  [MM Limited GHG Assurance Statement FY 2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W1RCQAhj4EKzQ_FTynLWaw/MMLimitedGHGAssuranceStatementFY201819.pdf) |

## **C11. Carbon pricing**

## **C11.1**

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

Yes

## **C11.1a**

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

Other carbon tax, please specify (Renewable Energy Certificate Trading)

Other carbon tax, please specify (GREEN ENERGY CESS-Electricity purchased)

## **C11.1c**

### **(C11.1c) Complete the following table for each of the tax systems in which you participate.**

### **Other carbon tax, please specify**

### **Period start date**

April 1 2018

### **Period end date**

March 31 2019

### **% of emissions covered by tax**

0.2

### **Total cost of tax paid**

1260654

### **Comment**

Renewable Energy Certificate Trading is done for M&M. The company had seen an opportunity in terms of MERC RPO Regulations 2016, wherein the Maharashtra state has mandated to procure Renewable Energy as per the % defined for each year. M&M had complied till F16 by procuring REC's and strategically decided to set up its own solar projects. Example: In FY16 2.1MW x 2 wind power projects @ Sangli Maharashtra and we added 2.1MW Wind Power project @ Aurangabad in FY18 catering to 85% of RPO requirements We have the plan to add more in the coming years to go beyond the RPO compliance requirements. Similarly, 9 MWp Solar Power projects till F19 set up with in-plant premises to meet 95% of RPO requirement and further projects to the tune of 4 MWp in the pipeline which will be beyond the RPO compliance requirements. In the reporting period Investment to the tune of INR 309800000/- was made to implement the wind and solar power project along with the other energy efficiency projects. The investment translates to INR 1106/ tCO2e(scope 1+2) Market-based.

### **Other carbon tax, please specify**

### **Period start date**

April 1 2018

### **Period end date**

March 31 2019

### **% of emissions covered by tax**

2.2

### **Total cost of tax paid**

741320

### **Comment**

GREEN ENERGY CESS on Electricity purchased at Uttarakhand plants (AD Haridwar & FD Rudrapur) wherein Uttarakhand Power Corporation Limited (UPCL) levies Rs 0.10 per unit of electricity procured as per "The Uttarakhand Green Energy Cess Act, 2014"

## **C11.1d**

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

Strategy for GREEN ENERGY CESS on Electricity purchased at Uttarakhand plants (AD Haridwar & FD Rudrapur)

where in Uttarakhand Power Corporation Limited (UPCL) levies Rs 0.10 per unit of electricity procured as per "The Uttarakhand Green Energy Cess Act, 2014"

for F19 :

AD Haridwar : 15,96,991 units consumed = Rs 1,59,699.10 paid to UPCL as Green energy Cess

FD Rudrapur : 58,16,213 units consumed = Rs 5,81,621.30 paid to UPCL as Green energy Cess

Total F19 : 74,13,204 units consumed and Rs 74,13,20.40 paid to UPCL as Green energy Cess

however, in F19 completed installation of 530 KWp solar power plants at AD Haridwar & FD Rudrapur.

This Solar plant shall meet 23% of AD Haridwar & 5% of FD Rudrapur plant plant requirements thus, the 10% green cess paid will reduced along with the carbon footprint of the company in F20. Also further feasibility is being explored to enhance the Solar capacity with in the plant

As a part of our long term strategy of becoming carbon neutral over period of time , we are leading by example and are in process to set up the Solar Power plant with in plant premises in phased manner and use for manufacturing operations, reducing our carbon footprint and the financial impact due to Green Cess being levied by UPCL.

We are also encouraging our suppliers in Uttarakhand to adopt renewable energy for their manufacturing operations thru the cluster meets, where in Suppliers are made aware of the sustainability aspects and shared the best practice in the industry.

In F16, M&M became the first Indian company to announce its internal carbon price of

US $10 per ton of carbon emissions. (i.e. INR 664/ tCO2e (scope 1+2) at fixed 1 USD = 66.4 INR)

The move was in-line with business commitment to reduce its GHG emissions year on year.

Also the company had seen an opportunity in terms of MERC RPO Regulations 2016, wherein the Maharashtra state has mandated to procure Renewable Energy as per the % defined for each year. M&M had complied till F16 by procuring REC's and strategically decided to set up its own solar & Wind projects.

Example: In FY16 2.1MW x 2 wind power projects @ Sangli Maharashtra and we added 2.1MW Wind Power project @ Aurangabad in FY18 catering to 95% of RPO requirements.

We have the plan to add more in the coming years to go beyond the RPO compliance requirements and become carbon neutral.

Similarly 9 MWp Solar Power projects till F19 set up with in plant premises to meet RPO requirement and beyond the RPO compliance requirements.

In the reporting period Investment to the tune of INR 309800000/- was made to implement the wind and solar power project along with the other energy efficiency projects . The investment translates to INR 1106/ tCO2e Market-based(scope 1+2).

## **C11.2**

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

Yes

## **C11.2a**

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

### **Credit origination or credit purchase**

Credit origination

### **Project type**

Wind

### **Project identification**

Mahindra & Mahindra Ltd. had set up 2.1MW x 2 windmills at Sangli in Maharashtra which generated 8616MWh in the reporting period. As per the Central Electricity Authority of India, the GHG Emission factor is 0.82 kg of CO2e per unit of Electricity procured from Grid. (verified by KPMG India) thus, 7065 tons of CO2e emissions avoided. thus the project originated Equivalent to 7065 Carbon credits. 1MWh = 1 REC's (Renewable energy Certificate) as approved by CERC (Central Electricity Regulation Commission) REC is a recognized and certified instrument for carbon offset. thus project generated power equivalent to 8616 non-solar REC's, which can be traded in the market at rates defined by CERC from time to time.

### **Verified to which standard**

Not yet verified

*M&M Ltd has not yet registered the project with the concerned agency as the company has plans to use the wind power for self-use only.*

### **Number of credits (metric tonnes CO2e)**

7065

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

7065

### **Credits cancelled**

Not relevant

### **Purpose, e.g. compliance**

Voluntary Offsetting

*M&M used the above credits generated to mitigate its RPO Compliance as per MERC RPO Regulations 2016. However, RPO Compliance will not be applicable to company F20 onwards as the company has stopped sourcing power which attracted RPO compliance and is planning to add more wind & Solar Projects for self use as aspires to be CARBON Neutral by 2040.*

### **Credit origination or credit purchase**

Credit origination

### **Project type**

Solar

### **Project identification**

Mahindra & Mahindra Ltd. had set up 9 MWp Solar Project installed and operating in India which generated 8062 MWh in the reporting period. As per the Central Electricity Authority of India, the GHG Emission factor is 0.82 kg of CO2e per unit of Electricity procured from Grid. (verified by KPMG India) thus, 6610 tons of CO2e emissions avoided. 1MWh = 1 REC's (Renewable energy Certificate) as approved by CERC (Central Electricity Regulation Commission) REC is a recognized and certified instrument for carbon offset. thus the project originated Equivalent to 8062 Carbon credits.

### **Verified to which standard**

Not yet verified

### **Number of credits (metric tonnes CO2e)**

6610

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

6610

### **Credits cancelled**

Not relevant

### **Purpose, e.g. compliance**

Voluntary Offsetting

## **C11.3**

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

Yes

## **C11.3a**

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

### **Objective for implementing an internal carbon price**

Navigate GHG regulations

Stakeholder expectations

Change internal behavior

Drive energy efficiency

Drive low-carbon investment

Identify and seize low-carbon opportunities

### **GHG Scope**

Scope 1

Scope 2

### **Application**

In F16, M&M became the first Indian company to announce its internal carbon price of US $10 per ton of carbon emissions. (i.e. INR 664/ tCO2e (scope 1+2) at fixed 1US$ = 66.4 INR) The move was in-line with a business commitment to reduce its GHG emissions year on year. The internal price of Carbon is UNIFORM PRICING - i.e. Single price is applied throughout the company. In the reporting period Investment to the tune of INR 30,98,00,000/- was made to implement the wind and solar power project along with the other energy efficiency projects. The investment translates to INR 1106/ tCO2e(scope 1+2). Investment (Numerator) = Rs 30,98,00,000/- Scope 1+ Scope 2 emissions Denominator = 2,80,120 tCO2 (Market based)

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

1106

### **Variance of price(s) used**

As of now, we have been using a fixed Minimum threshold of US$10 (INR 664) per MtCO2e (Scope 1+2) as our Internal Carbon price. We shall continue to explore the variance in price(s) based on further study by developing scenarios and seek top management approval.

### **Type of internal carbon price**

Internal fee

### **Impact & implication**

The company made an investment of Rs 30,98,00,000/- in F19 which is 20 % higher than F17. Resulting in RESTRICTING Scope 1 + Scope 2(Market-based) emissions to 2,80,120 tCO2e which would otherwise have been 291,292 tCO2e. i.e. Avoiding 111,120 tCO2e in the reporting period by implementing Energy and Renewable energy projects.

## **C12. Engagement**

## **C12.1**

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

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

## **C12.1a**

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

### **Type of engagement**

Compliance & onboarding

### **Details of engagement**

Included climate change in supplier selection / management mechanism

Code of conduct featuring climate change KPIs

Climate change is integrated into supplier evaluation processes

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

100

### **% Scope 3 emissions as reported in C6.5**

33

### **Rationale for the coverage of your engagement**

The Code of Conduct is an important part of the supplier boarding process and helps drive company culture, reputation, and compliance with the suppliers. M&M believes that, when a company outsources its production, services or business processes, it also outsources corporate responsibilities and reputation risks. Hence we need to find new strategies to manage the associated risks and opportunities which differ from the traditional risk and opportunity management with the company's products or services in-house. Also, the company is confronted with the need to minimize costs and time of delivery to satisfy suppliers' demand and increase profitability without negatively impacting product quality or incurring high environmental or social costs. Also, Investors increasingly see the importance of supply chain risk management and the negative consequences if it is not managed effectively. Corruption and bribery are economic crimes that are consistently harmful to a company's intangible assets (such as its reputation, staff morale, or business relationships). Evidence of corrupt practices can result in a company's exclusion from contracts financed by institutions that blacklist suppliers of bribes potentially affecting it is potentially affecting its future earnings. Due to the additional types of risk that corruption introduces, it creates uncertain consequences for investors and therefore increases the risk premium a company has to pay for debt or equity. The Supplier code of conduct describes the principles, values, standards, or rules of behavior that guide the decisions, procedures, and systems of the supplier in a way that (a) contributes to the welfare of its key stakeholders, and (b) respects the rights of all constituents affected by its operations. M&M Ltd. Code of Conduct focuses on areas of Ethical business standards, Commitment towards its associates, suppliers, customers and environment, Commitment to stakeholders, Behaviour at the workplace, Protection of Assets and Information Management, Administering the Code and Reporting Violations. Hence in the Code of Conduct, it has been clearly defined that M&M Ltd. has a zero-tolerance policy for bribery and corruption.

### **Impact of engagement, including measures of success**

We have an online communication channel for Suppliers “M-Setu” where the Supplier Code of Conduct which is accessed by all our suppliers. As a continual improvement, we have incorporated learnings from the last 3-4 years and launched the revised “Supplier Code of Conduct” in Mar’18, which is publicly available. We have an online system (SOP) for undertaking from the supplier through the “M-Setu” portal. The Code covers the following issues: ✓ Environmental standards for the suppliers' processes, products or services ✓ Child labour ✓ Fundamental human rights (e.g. labour rights, freedom of association, ILO conventions) ✓ Working conditions (e.g. working hours, lay-off practices) ✓ Remuneration ✓ Occupational health and safety ✓ Business ethics (Zero tolerance policy for bribery and corruption, anti-competitive practices) ✓ Our suppliers should have a sustainable procurement policy in place for their own suppliers We have elaborated all aspects of Supplier Code of conduct with addition of new points such as “Tax law compliance”, ”Marketing and Sales”,”Political involvement”, “Protecting MnM’s assets and Machinery” and No “Third-party representation of Mahindra” from Suppliers. In addition to the Code of Conduct - Policy on Dealings with Suppliers/Vendors of Products/Services, we also have specific Sustainable Green Supply Chain Management and Procurement Policy is available in the public domain. Annually Online Acknowledgement from suppliers/ service providers is taken to ensure that they have read and signed a document acknowledging that they understand and will comply with (or be responsible for ensuring that their organization complies with) the company's code of conduct. The training module is also provided to ensure that they adequately understand and can comply with (or create systems to ensure that their organization complies with) the company's code of conduct. The measure of success: The selection process has weightage (varies for commodities) for M&M’s sustainability requirements in their quotation. Self-assessments on the sustainability parameters followed by M&M’s assessment to declare Green Supplier of the year wherein they are given preference over other suppliers, Recognized in Annual Sustainability suppliers meet.

### **Comment**

The Company has a Code of Conduct for Suppliers and Vendors of Products and Services which is available in public domain at https://supplier.mahindra.com/Pages/CodeOfConduct.aspx Sustainable Green Supply Chain Management Policy, https://supplier.mahindra.com/Pages/SustainableGreenSCMPolicy.aspx Well defined structured process for identification and assessments of supplier for on-boarding. With the growing importance on Sustainability, especially in Automotive Industry, from last business year, we have added specific sustainability parameters encompassing Environmental, compliance, safety, and impact on society-related parameters. Specific sustainability parameters carry a minimum weightage of 10 % in new supplier evaluation criteria. A supplier must score a minimum of 60% for onboarding by M&M Limited. This applies to all Tier-I suppliers. The Cross-Functional Team (CFT) comprising of Strategic Sourcing Commodity and Commercial person, Component Development person, Design/R&D person, process engineering, goes for onsite assessment and suppliers are inducted based on Productivity, Quality, Cost, Delivery, Safety, Motive (PQCDSM), technology on offer, ESG parameters. This practice will be continued in the future too. The assessment framework covers all aspects of business and sustainability risks such as Environmental Compliances, Safety, Energy Management, Labour Practices, Geographic, etc. Each of the above 14 categories is equally important and any low scores (red category) arising out of self and actual assessment is dealt with equal importance across the board. Further, during supplier onboarding, they are assessed on various parameters including those related to their sustainability. A weightage of 10% is given to sustainability in new supplier evaluation criteria. A supplier must score a minimum of 60% for onboarding by M&M Limited. Suppliers are also assessed on sustainability as a part of supplier development and they are handheld for improvement in their sustainability performance. Reassessments are conducted to ascertain the improvement from such handholding exercises

### **Type of engagement**

Engagement & incentivization (changing supplier behavior)

### **Details of engagement**

Run an engagement campaign to educate suppliers about climate change

Climate change performance is featured in supplier awards scheme

Offer financial incentives for suppliers who reduce your operational emissions (Scopes 1 &2)

Offer financial incentives for suppliers who reduce your downstream emissions (Scopes 3)

Offer financial incentives for suppliers who reduce your upstream emissions (Scopes 3)

Other, please specify (Energy Audit of the supplier plant is conducted by Certified Energy auditors through ISC - Institute of Sustainable Communities under Factory engagement program)

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

33.4

### **% Scope 3 emissions as reported in C6.5**

10.7

### **Rationale for the coverage of your engagement**

We believe that “supply chain sustainability can no longer be ignored”. We are acting to adapt to geopolitical changes, raw material shortages, and changing weather patterns, as well as to improve the impact of their activity on communities and the environment. Also, We can’t improve what we can’t measure! One important aspect of supply chain sustainability is the carbon footprint. The carbon footprint of a product’s supply chain includes emissions from its raw materials, manufacturing, storage, and transportation. It is estimated that Supply chains can be responsible for up to four times the greenhouse gas emissions of a company’s direct operations. So, managing the footprint can have a significant effect on the company’s overall environmental performance. There are several good reasons to measure and manage the carbon and Water footprint of our supply chain. 1 cost optimization. Sustainability, especially in supply chain logistics, often goes hand-in-hand with efficiency. Eliminating any other waste of valuable resources leading to more sustainable supply chains and it can result in cost savings. Projects aiming to cut carbon emissions can yield additional benefits (like loading and route optimization), some of which could have significant financial value. 2 is brand and reputation management Investors, too, are increasingly paying attention to corporate sustainability performance. Principles for Responsible Investments, a UN-backed group of investors with about $60 trillion in assets under management, has committed to incorporating sustainability criteria into their investment decisions. 3) Finally, measuring and managing the carbon and Water footprint of your supply chain is a smart move to prepare for the future. Carbon emissions are already taxed in some places, and it could become a widespread practice. According to the UN, about 40 countries and 20 cities and regions have adopted or are planning explicit carbon prices (as of mid-2016). This covers approximately 12 percent of global carbon emissions

### **Impact of engagement, including measures of success**

Impact of Engagement: 60 of the suppliers have reduced their specific energy consumption and 51 suppliers reduced their water and waste consumption more than 3% compared to the previous year. The measure of success: Balance scorecard has been devised to track progress against 8 Sustainability parameters like Energy, water for Suppliers. The selection process has weightage (varies for commodities) for M&M’s sustainability requirements in their quotation. Self-assessments on the sustainability parameters followed by M&M’s assessment to declare Green Supplier of the year wherein they are given preference over other suppliers, Recognized in Annual Sustainability suppliers meet.

### **Comment**

### **Type of engagement**

Innovation & collaboration (changing markets)

### **Details of engagement**

Run a campaign to encourage innovation to reduce climate impacts on products and services

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

100

### **% Scope 3 emissions as reported in C6.5**

33.4

### **Rationale for the coverage of your engagement**

We believe that “supply chain sustainability can no longer be ignored”. We are acting to adapt to geopolitical changes, raw material shortages, and changing weather patterns, as well as to improve the impact of their activity on communities and the environment. Also, We can’t improve what we can’t measure! One important aspect of supply chain sustainability is the carbon footprint. The carbon footprint of a product’s supply chain includes emissions from its raw materials, manufacturing, storage, and transportation. It is estimated that Supply chains can be responsible for up to four times the greenhouse gas emissions of a company’s direct operations. So, managing the footprint can have a significant effect on the company’s overall environmental performance. There are several good reasons to measure and manage the carbon and Water footprint of our supply chain. 1 cost optimization. Sustainability, especially in supply chain logistics, often goes hand-in-hand with efficiency. Eliminating any other waste of valuable resources leading to more sustainable supply chains and it can result in cost savings. Projects aiming to cut carbon emissions can yield additional benefits (like loading and route optimization), some of which could have significant financial value. 2 is brand and reputation management Investors, too, are increasingly paying attention to corporate sustainability performance. Principles for Responsible Investments, a UN-backed group of investors with about $60 trillion in assets under management, has committed to incorporating sustainability criteria into their investment decisions. 3) Finally, measuring and managing the carbon and Water footprint of your supply chain is a smart move to prepare for the future. Carbon emissions are already taxed in some places, and it could become a widespread practice. According to the UN, about 40 countries and 20 cities and regions have adopted or are planning explicit carbon prices (as of mid-2016). This covers approximately 12 percent of global carbon emissions

### **Impact of engagement, including measures of success**

The company has long-lasting relationships with its suppliers. A majority of the supplier base has been already covered by conducting awareness sessions on ‘sustainability’. From F14 a special drive for awareness to suppliers was started and we had covered 428 suppliers till F16. A road map for covering additional 375 suppliers from F17 in the next 3 years’ period was put in place and actions were already underway to cover suppliers from MTBD, MTWL, SD, and CE divisions. In F17, 145 suppliers were covered by conducting two online training sessions. In continuation, in F18 additional 200 suppliers participated in training & awareness programs through online and classroom sessions In F19 another 193 participants attended the same, thus totaling to 538 Suppliers till F19 in the last 3 years. In addition to this since F17, we supported the Institute for Sustainable Communities (ISC) to launch EHS+ Center at Symbiosis Institute of International Business, Pune. This center is poised to provide training to Small &Medium Scale Enterprises (SMEs) in the field of Energy and Environment Health & Safety (EHS). A detailed curriculum was jointly prepared and training was imparted. In F18, 35 courses were developed and training was imparted to 779 participants, in continuation in F19 training were imparted to 1180 participants, thus totaling to 55 courses and 2978 participants training in the last three years for Indian industries. For enhancing skills at the Supplier ends, focused activities drive in the following areas was undertaken and organization work structure for the same has been put in place in the Purchasing group for the last few years. The areas covered are supplier business capability building (93 suppliers), Mahindra supplier evaluation standard (121 suppliers), Supply Risk Mitigation & Management ( 312 suppliers). About 380 Suppliers have actively participated in the Annual Supplier meets in F19. 80 Suppliers have adopted the Balance Score Card review mechanism and the Balance scorecard has been devised to track progress against 8 parameters and observed that 60 of the suppliers has reduced their specific energy consumption and 51 suppliers reduced their water and waste consumption more than 3% compared to the previous year.

### **Comment**

### **Type of engagement**

Information collection (understanding supplier behavior)

### **Details of engagement**

Collect climate change and carbon information at least annually from suppliers

Other, please specify (Collect Monthly, Balance score card of Sustainability Parameter)

### **% of suppliers by number**

100

### **% total procurement spend (direct and indirect)**

100

### **% Scope 3 emissions as reported in C6.5**

49.2

### **Rationale for the coverage of your engagement**

• Decision making on various aspects of the overall supply chain • Identifying areas of improvement • Improving on key aspects of the operation • Productivity and profitability improvement • Analysing the key issues and turning risks into opportunities • Resources optimization in the overall value chain • Taking informed decisions on climate-related investments in supply chain • Improving transparency on the reporting of Scope 3 emissions • Customer inputs can help to improvise the current product portfolio • Developing a new product based on customer expectations

### **Impact of engagement, including measures of success**

Impact of Engagement: The company has long-lasting relationships with its suppliers. A majority of the supplier base has been already covered by conducting awareness sessions on ‘sustainability’. From F14 a special drive for awareness to suppliers was started and we had covered 428 suppliers till F16. A road map for covering additional 375 suppliers from F17 in the next 3 years’ period was put in place and actions were already underway to cover suppliers from MTBD, MTWL, SD, and CE divisions. In F17, 145 suppliers were covered by conducting two online training sessions. In continuation, in F18 additional 200 suppliers participated in training & awareness programs through online and classroom sessions In F19 another 193 participants attended the same, thus totaling to 538 Suppliers till F19 in the last 3 years. In addition to this since F17, we supported the Institute for Sustainable Communities (ISC) to launch EHS+ Center at Symbiosis Institute of International Business, Pune. This center is poised to provide training to Small &Medium Scale Enterprises (SMEs) in the field of Energy and Environment Health & Safety (EHS). A detailed curriculum was jointly prepared and training was imparted. In F18, 35 courses were developed and training was imparted to 779 participants, in continuation in F19 training were imparted to 1180 participants, thus totaling to 55 courses and 2978 participants training in the last three years for Indian industries. For enhancing skills at the Supplier ends, focused activities drive in the following areas was undertaken and organization work structure for the same has been put in place in the Purchasing group for the last few years. The areas covered are supplier business capability building (93 suppliers), Mahindra supplier evaluation standard (121 suppliers), Supply Risk Mitigation & Management ( 312 suppliers). About 380 Suppliers have actively participated in the Annual Supplier meets in F19. Till F19 80 Suppliers have adopted the Balance Score Card review mechanism. The measure of Success: The Balance scorecard has been devised to track progress against 8 Sustainability parameters including GHG emissions, Energy Consumption, Water, Waste generated, packaging etc.

### **Comment**

## **C12.1b**

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

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

### **% of customers by number**

100

### **% Scope 3 emissions as reported in C6.5**

49.2

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

At Mahindra Sustainability is a Business driver as we believe that “It’s not about how big we become but how we become big" makes our brand a living business asset differentiating its products from those of its competitors and encourages customer loyalty. Brands must earn trust before they qualify for love. Without trust, there is no love. As today’s consumer becomes better informed they look for brands they can trust to deliver on their promises – not just on the products they offer but through everything they do. Thus, We emphasis on meeting and exceeding the customer needs through continuing with the active participation of customers. There were several initiatives within the Mahindra Group that are community-centered, showed long term outlook, and are focused on sustainability. "Rise for Good" was rolled out by Corporate Brand in 2014 on bringing all the Good that Mahindra did under a single umbrella, with focus areas on People, Communities, Governance, Planet, each of which are sharply interlinked with Sustainability. This brand would derive value from each different initiative and inject value back in each one of them. This gives ALL our customers & consumers a greater common thread to hold on to. Our customers are at the heart of Rise. All that we do empowers them to overcome their challenges. To exploit their ingenuity and experience a better life. All that we do center’s around enabling our customers to Rise. At Mahindra we don’t just sell products or services we build strong relationships with customers lead to increased customer loyalty. Harvard Business School research revealed that a 5% increase in retention can result in a profit increase of up to 75%, depending on the industry. The value of retaining customers makes perfect business sense when one considers that a consumer retained for life is more cost-effective, requires less service, provides more business and contributes to new customer acquisition by offering positive referrals. Additionally, customer relationship management tools provide important data that allows the company to target relevant customer groups, develop specific products, and ensure that it has all relevant information to strengthen customer relationships. Our customers are empowered with products and services to shape their own destinies and to have a profound effect on the world around us.

### **Impact of engagement, including measures of success**

We believe caring for the planet is cardinal in every business decision. This is why we have been at the forefront of Indian brands on Climate Change. We have a large electric vehicle portfolio, from two-wheelers to high-end luxury cars (with the Batista, launched in March). So also in solar energy. We are one of the first Indian companies to have an internal carbon price and are signatories of EP100. 8 of our factories are certified zero waste to landfill. We were the leading signatories of the Science-Based Targets, with our Chairman Anand Mahindra inviting other non-Mahindra companies to co-sign. Additionally, Mr. Anand Mahindra was one of the cohosts of GCAS (along with Mayor Micheal Bloomberg, Governor Jerry Brown, UNFCCC Executive Secretary Patricia Espinosa), the global summit on climate change. Formal brand-related performance metrics are used and are linked to an incentive program. Across the Group, above certain seniority, Mahindra employees have a component of their KRA dependent on Customer as Promoter Score, sustainability outreach towards brand building, improvement in brand scores. These are factored into payout & increments. Additionally, for key marketing functions, annual brand equity scores are part of the KRA for Chief Marketing Officers(CMO). These Brand equity scores are specific to the portfolio of that CMO and are measured on a yearly basis. Sustainability Brand Metrics: Once every two years, the brand team does a large-scale study that examines the components of Brand Admiration. Here, attributes such as ‘They are socially responsible’ and ‘they have environmentally friendly products’ tests sustainability and its influence on Brand. A total of 16 metrics are measured. The Corporate Brand Team is measured against these metrics. The metrics related to Sustainability have been consistently going up since the study first started in 2011. A) They are socially responsible: Scores on this attribute has improved from 36 (2011) to 57(2018). B). They are always known to introduce environmentally friendly projects: Scores on this attribute has improved from 45 (2011) to 53 (2018).

### **Type of engagement**

Collaboration & innovation

### **Details of engagement**

Run a campaign to encourage innovation to reduce climate change impacts

### **% of customers by number**

100

### **% Scope 3 emissions as reported in C6.5**

100

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

At Mahindra Sustainability is a Business driver as we believe that “It’s not about how big we become but how we become big" makes our brand a living business asset differentiating its products from those of its competitors and encourages customer loyalty. Brands must earn trust before they qualify for love. Without trust, there is no love. As today’s consumer becomes better informed they look for brands they can trust to deliver on their promises – not just on the products they offer but through everything they do. Thus, We emphasis on meeting and exceeding the customer needs through continuing with the active participation of customers. There were several initiatives within the Mahindra Group that are community-centered, showed long term outlook, and are focused on sustainability. "Rise for Good" was rolled out by Corporate Brand in 2014 on bringing all the Good that Mahindra did under a single umbrella, with focus areas on People, Communities, Governance, Planet, each of which are sharply interlinked with Sustainability. This brand would derive value from each different initiative and inject value back in each one of them. This gives ALL our customers & consumers a greater common thread to hold on to. Our customers are at the heart of Rise. All that we do empowers them to overcome their challenges. To exploit their ingenuity and experience a better life. All that we do center’s around enabling our customers to Rise. At Mahindra we don’t just sell products or services we build strong relationships with customers lead to increased customer loyalty. Harvard Business School research revealed that a 5% increase in retention can result in a profit increase of up to 75%, depending on the industry. The value of retaining customers makes perfect business sense when one considers that a consumer retained for life is more cost-effective, requires less service, provides more business and contributes to new customer acquisition by offering positive referrals. Additionally, customer relationship management tools provide important data that allows the company to target relevant customer groups, develop specific products, and ensure that it has all relevant information to strengthen customer relationships. Our customers are empowered with products and services to shape their own destinies and to have a profound effect on the world around us.

### **Impact of engagement, including measures of success**

"Rise For Good" was rolled out by Corporate Brand in 2014 which focused on bringing all the Good that Mahindra did under a single umbrella, with focus areas on People, Communities, Governance, Planet, each of which are sharply interlinked with Sustainability. This year, we have launched a film "the Hardest Worker" within Rise for Good. https://www.youtube.com/watch?v=YnhmRcQ4q6M. This film about Climate change and air pollution was uniquely crafted entirely out of waste paper and discarded cardboard. The film has garnered over 26 million views and an average percentage viewed of over 84%. The film has already picked up several awards including the IAA Olive Crown Award for creative excellence in communicating sustainability. It was also the second most engaged with Campaign in India on social media. During the campaign, we pledged to plant a tree for every like, share and retweet and have committed to planting 11,055 trees as a result of 40 days of engagement. In order to address the urgent environmental challenges faced by the planet, a collaborative effort can lead to Transformation that needs to be rapid and widespread. We believe caring for the planet is cardinal in every business decision. This is why we have been at the forefront of Indian brands on Climate Change. We have a large electric vehicle portfolio, from two-wheelers to high-end luxury cars (with the Batista, launched in March) we continuously seek customer feedback and their aspirations to develop a portfolio of mobility solutions that are Clean, Connected, and Convenient Incorporating valuable feedback from its customers, Mahindra, undertook the study of EV usage patterns and various parameters including, but not limited to, the charging cycle, real-time driving data, vehicle controls, etc. The company has used its learnings to develop many unique first-in-segment features on the NEMO Life Mobile App, with the aim of making mobility – Clean, Connected and Convenient. The 100 million-plus eKilometers clocked by Mahindra’s electric vehicles has helped save over 11,000 metric tons of CO2 emissions in India. This translates into the need to plant over 5 lakh trees to absorb the equivalent levels of emission. This milestone marks a shift toward a greener future, as India readies itself to embrace electric mobility.

## **C12.1c**

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

(A) Methods:

Overall Mahindra Group enters into dialogue about climate changed topics, both in direct dialogues as well as in initiatives on climate change related topics. Examples in the field of e-mobility and mobility services are:

1) We engaged with relevant stakeholders from academia, NGO sector, Government and city officials on the introduction of electric vehicles in India.

2) The Mahindra Group is an active member of the “ SMEV- The SOCIETY OF MANUFACTURERS OF ELECTRIC VEHICLES " in India.

Mr. Pavan Sachdeva, who Heads – Customer Relations and PR of Mahindra is the VICE PRESIDENT & CATEGORY HEAD (E4W) of SMEV MANAGEMENT

Thru, SMEV, we are contributing significantly to the cause of promotion of EVs in the country through the NEMMP-2020 and FAME policy, the rationalization of import duties and reduction of local taxes and levies to providing active support to EV industry and Govt. of India in shaping up the right future for Electric Vehicles and to put India on the Global map of EVs.

We would assist in creating a comprehensive ecosystem that accentuates the positives and mitigates the negative impact of EVs on our environment and Indian economy by closely working with NITI Aayog, Ministry of New & Renewable Energy, Ministry of Heavy Industry and State Nodal agencies on policy framework & pilot projects for the implementation of Electric Mobility across the many Indian States and Union Territories.

(B) Topics:

The contents of our dialogue with political NGOs or scientific organisations as well as governmental bodies are national legislation in the context of mitigation and adaptation, CO2 legislation and framework setting, renewable and e-mobility as well as other sustainability topics, new sustainable products, technologies and processes.

1) Our engagement for e-mobility address concerns on potential barriers, as missing infrastructure, for a large scale market introduction of electric vehicles in India reducing traffic carbon emissions.

(C) Engagement nature:

1. Assist Govt. in Implementation of Electric Mobility plan.

2. Assist manufacturers in understanding and implementing the FAME scheme to gain optimum benefits.

3. Persuade nodal agencies for faster implementation of pilot projects.

4. Help State nodal bodies in preparing the state EV policy

5. Spread awareness of Electric Vehicles.

6. Help evolve practically implementable ARAI standards.

7. Help streamline the battery recycling system.

8. Encourage and mentor manufacturers to adopt best practices of battery recycling systems.

9. Be the knowledge center for promoting indigenization of imported products.

10. Assist Exports of Electric Vehicles out of India.

11. Catalyze bulk purchase of Electric Vehicle in Government/Administrative departments and offices.

12. E-Support clear policy framework on Electric Vehicles to be part of town planning infrastructure.

13. Catalyze a favorable business environment to be created for investment opportunities in the Indian Electric Vehicle industry.

14. Become a source of authentic and accurate information on EVs.

15. Represent EVs in center/state bodies for benefits and rationalization of rules

## **C12.3**

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

Direct engagement with policy makers

Trade associations

Funding research organizations

## **C12.3a**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Focus of legislation** | **Corporate position** | **Details of engagement** | **Proposed legislative solution** |
| Carbon tax | Support | World bank’s Carbon Pricing Leadership Coalition (CPLC) We are members of the Carbon Pricing Leadership Coalition and our support is by spearheading the corporate Industry representation in the Group, especially the one from India. Where we are supporting the initiative and agenda by declaring our carbon Price and encouraging other companies to do so. We participate in the various forums to promote carbon tax adoption and impart awareness to the stakeholders interested. | Where we are supporting the initiative and agenda by declaring our carbon Price and encouraging other companies to do so. We have proposed that the fund collected by means of carbon tax should be utilised for driving climate change initiatives such as subsiding EV's for faster adoption and penetration |
| Energy efficiency | Support | We participated in various policy discussions with GOI, and Ministry of Heavy Industries on the FAME (Faster Adoption and Manufacturing of (Hybrid and Electric Vehicles) Scheme, which is part of National Electric Mobility Mission. Our senior management represented the sectors/industry associations on this initiative. We are working with private companies, and GOI to start pilot projects is some Indian cities (Nagpur). | Subsidy for Electric Vehicles by Govt. of India should continue up to 2022 for deeper penetration of clean technology into societyPresently Faster Adoption and Manufacturing of (Hybrid and Electric Vehicles FAME-India Scheme is further extended up to 30th Sept 2018 vide GoI Ministry of Heavy Industries circular date Mar 2018 Initiated the Clean Vehicle penetration into mass transport system, M&M , OLA and GoI along with GoM has started Electric Vehicle fleet @ Nagpur in 2017 |
| Energy efficiency | Support with minor exceptions | The PAT scheme was introduced after an industry wide consultation and we participated in the exercise and provided our feedback. | Though PAT is still not applicable to us, we have taken a stand that legislation related to energy efficiency should be applicable across sectors to leverage on the possibility of energy savings at the national level |
| Clean energy generation | Support with minor exceptions | We support the policy makers (MEDA, MERC) at multiple forums in their view on clean energy. In India, the Renewable purchase obligation regulation requires purchase of green electricity or to off-set the stipulated amount through marker based mechanism. | We propose that the ambit of renewable energy purchase obligation should be increased incrementally to boost clean energy generation. GoM should allow captive use of wind power with in state for RPO compliance which is presently not allowed as sited in Maharashtra Renewable energy policy 2015.GoM had amended the Maharashtra Renewable energy policy 2015 vide GR no.: APAU-2016/P.R.110/URJA-7 dated 3rd Dec 2016 allowing 500MW of Wind to be installed and used within state of Maharashtra for RPO compliance. We also put our stand with MERC that mutiple open access permissions should be allowed for full fillment of RPO compliance, Regulations and practical guidelines to be devloped and enforced for settelment o fteh RE power, We also requested that banking provisions for RE to be continued for solar and also restart for Wind Power in Maharashtra |
| Other, please specify (Conference support) | Support | Mahindra supported TERI's World Sustainable Development Summit of 2017 by the means of Knowledge partnerships and financial backing. The focus of the summit was on 'Beyond 2015, which is COP21: People, Planet and Progress', and it broadly focused on actions, on accelerated implementation of SDGs and NDCs. and Circular Economy | We were on the panel of Circular Economy session of World Sustainable Development Summit (WSDS) and requested guidelines and regulations to be drafted jointly with the concerned stakeholders and also highlighted the hurdles faced for co-processing waste to fuel under Inter state regime, due to different state level legislation, We proposed to have common guidelines and legislative provisions to enable success of circular economy and save valuable resources and reduce the GHG emissions associated with it in the benefit of the nation and society at large. |
| Adaptation or resilience | Support with minor exceptions | We engaged with relevant stakeholders from academia, NGO sector, Government and city officials on the introduction of electric vehicles in India. The Mahindra Group is an active member of the “ SMEV- The SOCIETY OF MANUFACTURERS OF ELECTRIC VEHICLES " in India. Thru, SMEV, we are contributing significantly to the cause of promotion of EVs in the country through the NEMMP-2020 and FAME policy, the rationalization of import duties and reduction of local taxes and levies to providing active support to EV industry and Govt. of India in shaping up the right future for Electric Vehicles | We strongly advocate following: - Front Loading of Incentive, at least for first 1-2 million EVs - Mandating the use of EVs in the e-commerce, courier, food delivery and such companies to convert their entire fleet into green mobility over a period of three years. - Enlarging the subsidy pool by imposing the marginal cess on polluting ICE vehicles. - Mandate Nationalised banks for preferential and priority sector funding of EVs. - Installation of metered charging sockets in all parking, malls, multistory apartments through mandating/amending laws. - Dedicated budget allocation for EVs awareness program like other Govt schemes. - To support the EV industry, to include 200% weighted deduction on investment made under RnD, for Income Tax calculation purposes, beyond 2020. - Opportunity battery swapping for 2W/3W as it will reduce the cost of ownership and remove the sticker as well as the range anxiety. - Uniform GST rate for EV and Battery and lower GST rate for OE and replacement battery |
| Energy efficiency | Support | We have activle engaged with Energy Efficiency Services Limited (EESL) for LED , Motors, AC’s, EV’s program | We advocate that Energy Efficiency Services Limited (EESL) should seek support form corporate houses in form of Public private partnership in order to drive energy efficiency schemes such as UJALA, Motor replacement program, E-Vehciles, trigeneration so that mass adoption can be driven and indirectlt reduce the GHG emsiisons by driving Energy efficient devices/equipment. We had offered this as pilot to our suppliers and in with EESL now our suppliers have replaced their Lights with LED's, We have provide a pilot study platform for rol out of energy efficient motors and AC's. |

## **C12.3b**

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

Yes

## **C12.3c**

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

### **Trade association**

SMEV- The SOCIETY OF MANUFACTURERS OF ELECTRIC VEHICLES SMEV is committed to providing active support to Electric Vehicle(EV) industry and Govt. of India in shaping up the right future for Electric Vehicles and to put India on the Global map of EVs. SMEV assists in creating a comprehensive ecosystem that accentuates the positives and mitigates the negative impact of EVs on our environment and Indian economy. SMEV work closely with NITI Aayog, Ministry of New and Renewable Energy, Ministry of Heavy Industry and State Nodal agencies on policy framework and pilot projects for the implementation of Electric Mobility across the many Indian States and Union Territories.

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

The Mahindra Group is an active member of the “ SMEV- The SOCIETY OF MANUFACTURERS OF ELECTRIC VEHICLES " in India. Mr. Pavan Sachdeva, who Heads – Customer Relations and PR of Mahindra is the VICE PRESIDENT and CATEGORY HEAD (E4W) of SMEV MANAGEMENT

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

Mr. Pavan Sachdeva, who Heads – Customer Relations and PR of Mahindra is the VICE PRESIDENT and CATEGORY HEAD (E4W) of SMEV MANAGEMENT Engagement nature: 1. Assist Govt. in Implementation of Electric Mobility plan. 2. Assist manufacturers in understanding and implementing the FAME scheme to gain optimum benefits. 3. Persuade nodal agencies for faster implementation of pilot projects. 4. Help State nodal bodies in preparing the state EV policy 5. Spread awareness of Electric Vehicles. 6. Help evolve practically implementable ARAI standards. 7. Help streamline the battery recycling system. 8. Encourage and mentor manufacturers to adopt best practices of battery recycling systems. 9. Be the knowledge center for promoting indigenization of imported products. 10. Assist Exports of Electric Vehicles out of India. 11. Catalyze bulk purchase of Electric Vehicle in Government/Administrative departments and offices. 12. E-Support clear policy framework on Electric Vehicles to be part of town planning infrastructure. 13. Catalyze a favorable business environment to be created for investment opportunities in the Indian Electric Vehicle industry. 14. Become a source of authentic and accurate information on EVs. 15. Represent EVs in center/state bodies for benefits and rationalization of rules (C) Actions advocated: We strongly propagate following: - Front Loading of Incentive, at least for first 1-2 million EVs - Mandating the use of EVs in the e-commerce, courier, food delivery and such companies to convert their entire fleet into green mobility over a period of three years. - Enlarging the subsidy pool by imposing the marginal cess on polluting ICE vehicles. - Mandate nationalized banks for preferential and priority sector funding of EVs. - Installation of metered charging sockets in all parking, malls, multistore apartments through mandating/amending laws. - Dedicated budget allocation for EVs awareness programs like other Govt schemes. - To support the EV industry, to include 200% weighted deduction on the investment made under RnD, for Income Tax calculation purposes, beyond 2020. - Opportunity battery swapping for 2W/3W as it will reduce the cost of ownership and remove the sticker as well as the range anxiety. - Uniform lower GST rate for EV and Battery and lower GST rate for OE and replacement battery

### **Trade association**

Society of Indian Automobile Manufacturers (SIAM) is the apex Industry body representing leading vehicle and vehicular engine manufacturers in India. • SIAM Interacts with various international bodies. Represents industry in APEC Automotive Dialogue, WTO, UN ECE WP29, OICA, IMMA, etc. • SIAM represents Indian automotive industry in federation of global automotive industry associations - OICA and IMMA. • SIAM works closely with counterpart associations like SMMT, VDA, JAMA, TAIA, CAAM, AFM, ANFIA, ACEA, ANFAVEA, KAMA, GAIKINDO, etc. • All activities of SIAM are geared to promote sustainable development of automobile industry in India.

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

The SIAM nationally and internationally promotes the interests of the entire Indian automotive industry. SIAM addresses a wide spectrum, including safety, quality and sustainability issues such as environmental protection in production, fuel efficiency and alternative drive technology as well as e-mobility. SIAM promotes corresponding policies to these issues which reflect the opinion of the member companies about most appropriate actions and measures. An example of particular interest is the BS VI norms w.e.f. April 2020 in the India. The SIAM promotes a holistic approach to consider all sources of CO2 emissions in the life cycle of vehicles. Further reduction of fleet averaged CO2 emissions is one component not in question by the SIAM. However the BS VI target in 2020 is already only achievable with great and increasingly expensive technical efforts and, in particular for SUV manufacturers, A skip in BS V norms requirements means that car prices significantly increase and conventional BS IV have to be replaced by BSVI compatible components/ technology . In consequence cars get more expensive what prevents clients to buy new efficient cars. Concerning electric mobility the car industry is delivering attractive products but clients also have to find the offers attractive and accept them. Therefore SIAM advocates technical viable reduction requirement in 2030. To reflect the further development of client acceptance of electric mobility, targets should not be fixed before 2030. To support electric mobility regulation should keep the accounting of electric vehicles or electrically driven shares of PHEVs with 0 g/km when calculating the fleet averaged CO2 emissions. India and local regulations should temporarily subsidize electric mobility (e.g. bonuses / tax breaks for the purchase of e-vehicles, elimination of taxes), charging infrastructure and measures such as special parking rights or use rights of bus lanes should be introduced. SIAM advocates measures to decrease emissions of existing fleets and proposed e.g. as instrument to incentivise de-carbonisation of transportation fuels the inclusion into the Emission Trading System (“Cap and Trade”). Due to price transmission this not only effects fuel producers but also incentivise car owners to drive fuel efficient cars and to change their driving behaviour.

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

By the consistent membership of the association and by the regular participation in all relevant working groups. M&M is expressing its position in all activities, thus influencing the overall position on climate change of the SIAM.

### **Trade association**

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the growth of industry in India, partnering industry and government alike through advisory and consultative processes.

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

We hold Co-Conveyor position in Western Region Maharashtra Environment committee, constantly interacts and engages with other stakeholders to spread awareness and share recommendations for various new or updates to existing policies, drive innovations to solve specific business challenges including those related to climate change and Renewable energy

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

We have prototype an internal open innovation network to solve specific business challenges – e.g. the Rise and Shine open innovation platform. We are collaborating with CII to sponsor external innovators solve business challenges for us – e.g. how do we increase agricultural productivity through mechanization, agronomic services and water conservation? http://www.ciiinnovation.in/index.php National contest on innovative solutions for driver less vehicle and solar car. http://www.mahindra.com/news-room/pressrelease/1393504217 We support CII in terms of Sponsor ship for the events such as Renew India- to demistfy myths of RE and promote RE adoption.

### **Trade association**

The Automotive Research Association of India ( ARAI ) has been playing a crucial role in assuring safe, less polluting and more efficient vehicles. ARAI provides technical expertise in R&D, testing, certification, homologation, and framing of vehicle regulations. ARAI is research association of the Automotive Industry with Ministry of Heavy Industries and Public Enterprises, Government of India. It works in harmony and complete confidence with its members, customers and the Government of India to offer the finest services, which earned for itself ISO 9001, ISO 14001, OHSAS 18001 and NABL accreditations.

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

It works in harmony and complete confidence with its members, customers and the Government of India to offer the finest services,

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

We have consistent membership in ARAI thur Mahindra & Mahindra Ltd., Mahindra Electric Mobility Ltd (Formerly Mahindra Reva Electric Vehicles Pvt Ltd ), Mahindra Heavy Engines Ltd. and Gromax Agri Equipment Ltd (Formerly known as Mahindra Gujarat Tractor Ltd ) We participate at multiple forums established by ARAI and participate in advocacy for cleaner technology. (Electric Vehicles) We have provided our inputs for various discussion on emission and efficiency norms. For Example: for Electric Vehciles we suggested to have clear specification for EV's Charges classification

### **Trade association**

TERI - The Energy and Resources Institute: is a not-for-profit, independent, multi-dimensional organization, with capabilities in research, policy, consultancy, and implementation.

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

TERI are innovators and agents of change in the energy, environment, climate change and sustainability space, having pioneered conversations and action in areas of climate change, environment, energy, and sustainable development for over four decades.

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

We are a member of the TERI and on Business Advisory Board. we constantly interact and engages with other stakeholders to spread awareness and share recommendations for various new or updates to existing policies Policy briefs for State and Central Ministries Design Guidelines for Developers considering the codes and bye-laws The database will be made available as a tool on the CoE website Plugin for simulation software

## **C12.3d**

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

Yes

## **C12.3f**

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

Since Mahindra and Mahindra Limited is committed to greener vehicles and sustainable development, empowering people to Rise, the support to policies consistent with our climate change strategy is there.

All the decisions are taken at the Group Sustainability Council level. Frequent meetings are held to take stock of the situations regarding policies. Recommendations are collected thru stakeholder engagement and submitted to the concern policy office.

The business risk of climate change can affect us in multiple ways – regulatory impact on vehicle sale, physical changes which could affect the operating environment of the vehicles and others. Thus, as we operate in a climate sensitive industry, we have taken major steps to identify and address the risks arising from climate change thru policy influence, adapt and promote mitigate measures.

Our focus on Electric vehicle to increase market share of EVs in India is a major step.

In a bid to go green, the government is targeting the year 2030 by which it plans to go all-electric in terms of new car sales in the country. In its National Electric Mobility Mission Plan, the government hopes to get at least six to seven million electric vehicles on the road by 2020 and emphasizes importance of government incentives and coordination between industry and academia.

Outcome of such recommendations has resulted in The Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) India was launched in 2015 under India’s National Electric Mobility Mission Plan(NEMMP). It aims at promoting eco-friendly vehicles in the country. Government of India thru Ministry of Heavy Industries and Public Enterprises has extended Phase-1 of FAME India Scheme to provide financial support to electric and hybrid vehicles by another six months till 30 September 2018 or till launch of phase-II.

NEMMP has set target of deploying 5 to 7 million electric vehicles in the country by 2020 Since Thirteen out of 20 cities in the world with highest air pollution are in India. It is envisaged that Low carbon scenario with ‘highest’ EV penetration shows 50 percent drop in PM 2.5 by 2035 (UNEP, DTU and IIM-A) .

Master plans for most cities in India target 60-80 per cent public transport ridership by 2025-2030 (Centre for Science and Environment)

With the Government of India targeting 100 GW of solar by 2022, electric vehicles can improve reliability and utilization of renewable by acting as storage, this provides an opportunity (for the company) to materialise in due course.

To ensure actions for climate change mitigation are consistent with the policy advocacy engagements, we have also adopted major initiatives at our manufacturing facilities, through our ‘Promise Statement 2019’ and in 2016, M&M became the first Indian company to announce its internal carbon price of $10 per ton of carbon emissions. The move was in-line with business commitment to reduce its GHG emissions by 25% over the next three years.

In F17, we signed up ‘EP100’ campaign led by ‘The Climate Group’, to double our energy productivity by 2030. This is part of our contribution towards achieving the climate goals agreed upon at COP21.

Many of these actions are already underway as demonstrated by the Company now uses 63% less energy to produce a vehicle than what was done eight years ago. Mahindra Towers at Worli and Kandivali are Indian Green Building Council (IGBC) Platinum existing buildings. The Mahindra IT Centre at Kandivali is USGBC LEED gold certified green building.

We have also implemented renewable energy projects (Wind Power, Solar Thermal/Solar PV) for all manufacturing sites. by the end of the reporting period we had 9 MWp Solar PV plants and 6.3MW Wind Power. We also procure the Renewable Energy Certificates to ensure compliance and to support the national agenda for enhancing renewable energy.

Our social responsibility initiatives are also mitigating our carbon emissions. We undertake tree plantation through Project Hariyali every year.

In the reporting period, the Mahindra & Mahindra Ltd. planted 1.45 Million trees and Mahindra Group has planted more than 15 Million trees across India till date.

Mr. Anand G. Mahindra, Executive Chairman of our Company represented the Corporate World Economic Forum at Davos(F18) and issued a ‘Call to Action’ to all industries and businesses to adopt Science Based Targets is a testimony of Company’s continuing efforts to combat climate change.

The above approaches shall reduce the risk of increasing Input cost, operating cost, Reduction in revenue generation due to products and also insulate us against possible business interruptions by 2030.

Increasing the Low carbon product portfolio mix (EV’s, CNG vehicles, Micro irrigations systems etc) and investing in RE will help us be Energy secure.

## **C12.4**

### **(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[M-M-Integrated-Annual-Report-2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/gYQoH5ErFECTaHTycvyzkA/MMIntegratedAnnualReport201819.pdf)

### **Page/Section reference**

In M-M-Integrated-Annual-Report-2018-19 Page 155 Section Corporate Governance Page 143 Section STRATEGY

### **Content elements**

Governance

Strategy

Emissions figures

### **Comment**

Good governance beckons the right way, taking a company towards sustained success.

### **Publication**

In voluntary sustainability report

### **Status**

Underway – previous year attached

### **Attach the document**

[Mahindra-Sustainability-Report-2018-19.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/W_BMrqD_L0mNILGmBldyuQ/MahindraSustainabilityReport201819.pdf)

### **Page/Section reference**

In DRAFT Mahindra-Sustainability-Report-2018-19 refer, Page 20 Section Corporate Governance Page 45 Section SUSTAINABILITY & US for STRATEGY Page 85 Section Environment performance for Emission figures, Targets, and other metrics

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

### **Comment**

## **C14. Signoff**

## **C-FI**

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

Mahindra & Mahindra is the founder member of Global Compact Network India (GCNI) the Indian arm of United Nations Global Compact(UNGC).

M&M has position on climate change consistent with UNGC.

Representation

* Anand Mahindra, Chairman, Mahindra Group is on the governing board of the United Nations Global Compact.
* Anirban Ghosh, Chief Sustainability Officer, Mahindra Group is on the governing board of UNGC – India.

At the United Nations Global Compact (UNGC), the aim is to mobilize a global movement of sustainable companies and stakeholders. To make this happen, the UN Global Compact supports companies to:

* Do business responsibly by aligning their strategies and operations with Ten Principles on human rights, labour, environment and anti-corruption; and
* Take strategic actions to advance broader societal goals, such as the UN Sustainable Development Goals, with an emphasis on collaboration and innovation.

The strategy of UNGC is to provide a principle-based framework, best practices, resources and networking events that have revolutionized how companies do business responsibly and keep commitments to society. By catalysing action, partnerships and collaboration, UNGC is making transforming the world possible – and achievable – for organizations large and small, anywhere around the globe. This is done by incorporating the Ten Principles of the UN Global Compact into strategies, policies and procedures, and establishing a culture of integrity, companies are not only upholding their basic responsibilities to people and planet, but also setting the stage for long-term success.

The Ten Principles of the United Nations Global Compact are derived from:

* the Universal Declaration of Human Rights,
* the International Labour Organization's Declaration on Fundamental Principles and Rights at Work,
* the Rio Declaration on Environment and Development, and the Corruption.

The Ten Principles are:

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labour;

Principle 5: the effective abolition of child labour; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

UNGC participants across industries including M&M are changing the way they operate to implement responsible practices and developing innovative solutions to address poverty and inequality, and support education, health and peace, to name just a few areas.

How have we (M&M) influenced, or are attempting to influence their position?

Major Engagements

Carbon Pricing Champions

In Oct 2016, M&M became the first Indian Company to announce its internal Carbon Price of US $10 per ton of carbon emitted aligned with its business commitment to reduce its GHG emissions by 25% over the next 3 years. The UN Global Compact calls on companies to set an internal price at a minimum of $100 per metric ton over time. to create resources which are invested in low carbon technologies help reduce future emissions and lower operating costs.

Mahindra is aiding UNGC in this journey through participation in industrial webinars and interactions with businesses hosting events

Science Based Targets (Committed)

SBTs provide companies with a clearly defined pathway to future-proof growth, by specifying how much and how quickly they need to reduce their greenhouse gas emissions, in line with the Paris Agreement's goal of limiting global warming to well below 2°C above pre-industrial levels. Taking on emission and carbon footprint reduce on targets as per the SBT framework, is a testimony of our continuing efforts to combat climate change.

It is a collaboration between CDP, the United Nations Global Compact (UNGC), World Resources Institute (WRI), and the World-Wide Fund for Nature (WWF) and one of the We Mean Business Coalition commitments.

* Mahindra promotes best practice in science-based target setting with the support of a Technical Advisory Group through participation in workshops & Webinars
* Mahindra sought to dispel persistent ‘myths’ about business action on climate change that there is a trade off between choosing to do something that improves climate and your growth or your profits,”
* Mahindra Offers resources for workshops and guidance to reduce barriers to adoption

Anand Mahindra, Chairman, Mahindra issued the challenge in the World Economic forum 2019, exhorting the companies to adopt SBTi, it is now globally known as the Mahindra challenge and has generated a global momentum for SBTi.

In line with the Paris Agreement's goal of limiting global warming to well below 2°C above pre-industrial levels, we are taking on emission and carbon footprint reduction targets as per the SBT framework in a testimony of our continuing efforts to combat climate change.

By the end of FY 2018-19, TWENTY Mahindra companies have already signed the Science Based Targets initiative (SBTi).Three of the Mahindra companies have got their targets accepted and other companies in pipeline.Overall, Mahindra Group commits to be Carbon Neutral by 2040, with a clear focus on energy efficiency and usage of renewable power to achieve the target. Residual emissions will be addressed through carbon sinks.

We are doing our part in the global fight against climate change with this ambitious new target. Mahindra will leverage the latest technological advances and its recently announced Carbon Price to work towards being carbon neutral by 2040.

## **C14.1**

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

|  |  |  |
| --- | --- | --- |
|  | **Job title** | **Corresponding job category** |
| Row 1 | Chief Sustainability Officer (CSO) GROUP SUSTAINABILITY He reports to the Group Sustainability council which consists of CEO/ MD/ Heads of Mahindra Group companies and corporate functions | Chief Sustainability Officer (CSO) |