# **Mahindra & Mahindra - Climate Change 2018**

## **C0. Introduction**

## **C0.1**

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

Many Companies One Mahindra

Our story was cast and hewn in India’s steel industry in 1945, and today, we’re a US $19 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 2017 | March 31 2018 | Yes | 3 years |
| Row 2 | April 1 2016 | March 31 2017 | <Not Applicable> | <Not Applicable> |
| Row 3 | April 1 2015 | March 31 2016 | <Not Applicable> | <Not Applicable> |
| Row 4 | April 1 2014 | March 31 2015 | <Not Applicable> | <Not Applicable> |

## **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) 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 above-mentioned Board Committee The Committee, inter alia, reviews and monitors the CSR as well as Sustainability activities including Climate change, Water and other sustainability initiatives |
| Board/Executive board | 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 above-mentioned Board Committee The Committee, inter alia, reviews and monitors the CSR as well as Sustainability activities including Climate change, Water etc. President - IT sector, CTO, Mahindra Group) 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  Reviewing and guiding annual budgets  Reviewing and guiding business plans  Setting performance objectives  Monitoring implementation and performance of objectives  Overseeing major capital expenditures, acquisitions and divestitures  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. MnM 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. MnM 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 MnM 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) Below board-level, provide the highest-level management 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  *Business Sector specific 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.**

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 President - IT sector and Mahindra Group CTO, 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.**

### **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, 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 Balanced 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 MnM 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 bench marking, - 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 bench marking, - media monitoring |
| Long-term | 6 | 15 | Long-term risks are risks that could impact MnM 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 bench marking, - 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 MnM 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 fallback 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 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 legislation's related to environmental concerns. Changes in Import, export, sales and excise duties also effect the prices of the vehicles which will impact the sales of company and industry as a whole. Example: BS-IV regulations applicable w.e.f. 1st Apr 2017. MnM is sourcing open access power from thermal power plant, hence has RPO obligation to comply as per MERC RPO Regulations 2016. valid till 31st Mar 2020. etc. This current regulations can have impact on the sales and operating costs of company. Regulatory compliance is non-negotiable for MnM and hence these category 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 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 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 impact on the sales of company and industry as a whole. Regulatory compliance is non-negotiable for MnM and hence these category of risks are always included . We are on panel of Society of Manufacturers of Electric Vehicles (SMEV) to drive Electric mobility adoptions in India and are helping 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 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 RO’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. By offering sustainable individual mobility technologies we mitigate climate related physical risks and develops business opportunities. We are proceeding with 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 has struggled in the marketplace despite its zippy looks and having been designed specifically for the Indian market. And recently, we heard news that GM is reducing 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 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 emobility 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. Their 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 MnM 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 MnM 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. At M&M, Chief Risk Officer (CRO) is responsible for identifying and assessing corporate and asset level risks in Short(market R/O’s), Medium and or Long term (asset Level R/O’s),reports to Group President – 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 - The Chief Risk Officer and the Chief Sustainability Officer(CSO) 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 (in 2015) 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 and also provides tangible feedback to the organizational strategy for CC.

Methods for analysing R/O includes exposure analysis, historical analysis, and scenario analysis. 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 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.

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 such as test events, design considerations, and more.

Forward Planning: Determine the who , when will monitor Lead & Lag indicators identified and time needed to complete each action step & expected completion dates.

Determine when a move to a contingency plan

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.

- cues and triggers are identified to activate contingency plans and R/Overviews

Evaluate the status of each action. 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 with financial impact to the tune of 10% of the company’s revenue is considered to have significant impact.

eg: BSIV 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 exiting offerings of the company.

Under current scenario migration from BSIV to BSVI 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 dead lines as per Critical success factors for transition. Vendor development strategy & Schedule is planned.

As a fall back plan, migration to BSVI with technology acquisitions for select offerings is planned with pre-defined target dates.

eg: Physical risk or Water shortage (drought):

Tractor sales have direct correlation to the rains as observed in F15 & F16. This has prompted us to plan for water efficiency projects, rain water harvesting, enhance waste water recycling and become self reliant following above process at all manufacturing locations.

Fall back plan of flexible production sites.

## **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 driver**

Technology: 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 certain class of Diesel vehicles, arising from concerns over clean air. Since 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, have led to decrease in demand for diesel fueled passenger vehicles. which have declined from 58 per cent of total sales in 2012-13 to 40 per cent in 2017-18. Government has announced the implementation of BS VI emission norms from 1st April, 2020. With this, the concern over 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. 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 an other challenge for our industry as a whole.

### **Time horizon**

Short-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

3179500000

### **Explanation of financial impact**

"Higher taxation on diesel vehicles is affecting our sales, which have declined from 58 per cent of total sales in 2012-13 to 40 per cent in 2017-18," 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. 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 tune of INR 317,95,00,000/-based on the internal analysis of the various factors linked to the above risk.

### **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 development of BS VI emission technologies within the time and cost targets is being done. The Company is actively pursuing a strategy to develop and introduce Petrol engines across the product range. The company said it 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. MnM sold 2,33,915 utility vehicles in 2017-18, a rise of 5.1 per cent 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**

19919400000

### **Comment**

Cost of management involves system up gradation cost. technology, talent acquisition cost, Customer awareness and making AFFORDABLE offerings for the customers.

### **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 driver**

Reputation: Reduced revenue from decreased demand for goods/services

### **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

### **Potential financial impact**

3179513000

### **Explanation of financial impact**

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 choice of fuel, ownership patterns and will have significant impact on the future of industry. The government has announced plan for migration to BSVI 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 of Auto Sector is equivalent to INR 3,179,513,000

### **Management method**

With aim to remain competitive in the market and sustain leadership, MnM continues to invest in Electric Vehicles in India, and actively pursuing development of the EV market, products and technology. 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**

19919400000

### **Comment**

Cost of management is associated with transition RnD efforts required , Technology acquisitions, Talent pool development 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 driver**

Reduced revenues from lower sales/output

### **Company- specific description**

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. 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 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

### **Potential financial impact**

1576181000

### **Explanation of financial impact**

Change in rainfall patterns : 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. 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 157,61,81,000.

### **Management method**

Steps 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. Similar water conservation projects being implemented for Auto Division to reduce dependency on rainfall.

### **Cost of management**

19919400000

### **Comment**

Cost of management is associated with transition RnD 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 driver**

Technology: Reduced demand for products and services

### **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 affceted

### **Time horizon**

Long-term

### **Likelihood**

More likely than not

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

3179513000

### **Explanation of financial impact**

it is estimated that atleast 10-20% of drive train of conventional vehicle will not be required hence suppliers revenue will be impacted badly

### **Management method**

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.

### **Cost of management**

100000000

### **Comment**

cost of management will be mainly for training and co-creation efforts for electric vehicle developement

## **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 driver**

Increased revenue through demand for lower emissions products and services

### **Company- specific description**

Government of India’s scheme of FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles-Phase-I) was launched in Apr'15 to promote electric vehicles on road has been extended by another 6 months till Sept 2018 or till launch of Phase-II. For this, infrastructure is set up. This is going to increase the demand for MnM’s electric vehicles. MnM’s automotive sector’s revenue in F18 was INR 317,951,300,000/-. 1% increase in revenue is equivalent to INR 3,180,000,000/-. MnM Limited is already in the business of manufacturing of Electric Vehicles. The Sales volume is picking up every year. Sales volume for electric vehicles was 4026 nos in F18 as against 1,021 nos in F17. Further RnD 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.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium-high

### **Potential financial impact**

3179513000

### **Explanation of financial impact**

For this, infrastructure is set up. This is going to increase the demand for MnM’s electric vehicles. MnM’s automotive sector’s revenue in F18 was INR 317,951,300,000/-. 1% increase in revenue is equivalent to INR 3,180,000,000/- MnM 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.

### **Strategy to realize opportunity**

MnM Limited is already in the business of manufacturing of Electric Vehicles. Further RnD 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 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. 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; Passenger Van eAlfa Mini: Redefining last-mile connectivity, Mahindra’s first electric Rickshaw and other projects are in various RnD stages and likely to be commercialised in coming year.

### **Cost to realize opportunity**

19919400000

### **Comment**

Cost of management is associated with transition RnD efforts required , Technology acquisitions, Talent pool development, setting up infrastructure for manufacturing the offerings an most importantly enhancing portfolio of product and Services AFFORDABLE for the customers.

### **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 driver**

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

### **Company- specific description**

As a part of regular compliance, MnM 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, MnM 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

### **Potential financial impact**

40000000

### **Explanation of financial impact**

MnM 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 MnM 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**

MnM 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 compay 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 MnM 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. 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 driver**

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 if climate change to the tune of +2deg Celsius happens and most of the facilities of MnM 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 building 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

### **Potential financial impact**

80000000

### **Explanation of financial impact**

MnM started its green building journey by new Green building in 2014, and since then has converted Six 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 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 payback of 2-3 years

### **Strategy to realize opportunity**

MnM started its green building journey by converting its first office building in 2014 and since then has converted Six 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 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 helps in following ways: 1) Reduce dependencies on the scares resources 2) Energy and Water efficient usage, thus reduced 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. We have also initiated the assessments of the other office buildings at Zaheerabad plant, Swaraj Mohali plant-1. In 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 Sustainability policy all new facilities of MnM are to be designed as per Green Factory/ Building criteria. Also we are spreading awareness thur IGBC forums where in we are sharing our Green Building/Journey experiences.

### **Cost to realize opportunity**

200000000

### **Comment**

Recently, Mahindra Research Valley(MRV), Chennai has become the first facility across the Mahindra Group to have been rated as a green platinum campus (Existing). It is indeed a great achievement for MRV to stand at the top across the Mahindra Group, 1st in Tamil Nadu and 9th in the country to achieve the Green Campus Certification! 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, MnM 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, MnM 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, MnM 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, MnM 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 | MnM invested INR 19,380,000,000 in FY16 for product development. Further, INR 18,860,000,000 investments in RnD was done in F17 continuing the RnD efforts to enhance the product offerings INR 19,919,400,000 were further deployed F18, MnM Limited is already in the business of manufacturing of Electric Vehicles. Further RnD 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 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. 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, Mahindra’s first electric Rickshaw and other projects are in various RnD stages and likely to be commercialised in coming year. |
| Operations | Impacted for some suppliers, facilities, or product lines | MnM 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 complied 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 MnM 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 MnM 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 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, MnM 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, MnM plans to be 100% compliant at least 6-months in advance |
| Operating costs | Impacted | MnM 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 complied 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 MnM 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 MnM 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. MnM 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. MnM has also committed to Science Based Targets Initiatives. |
| Capital expenditures / capital allocation | Impacted for some suppliers, facilities, or product lines | In F16, MnM 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 313700000 was made to implement the wind and solar power project along with the other energy efficiency projects . The investment translates to INR 1167/ 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 | MnM 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 MnM'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 | MnM has been voluntarily disclosing it environmental performance to CDP Climate Change program since 2010 and The Dow Jones Sustainability Indices (DJSI) since past 6 years and in annual report BRR for past 3 years which enable investors and other stakeholders to take informed decisions and thus ensured that MnM has access to capital all the time at discounted rates, Also the governance aspects of MnM 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 317000000/- which is Equivalent to 1% of Revenue is avoided and Brand value of MnM is enhanced by investing INR 80,00,000/- |
| Liabilities | Impacted for some suppliers, facilities, or product lines | In F16 RPO was complied 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 MnM 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 MnM 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 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. Initiating the process in FY 2015-16 we have invested INR 30,000,000, FY 2016-17 invested 60,000,000 and invested further INR 170,000,000 in FY 2017-18 to completely migrate to LED lighting systems.

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 75,000,000 .Waste Management: Co processing of the waste in cement industries Solar Power Plants : INR 80,000,000 (1.54 MWp) Renewable Energy - Wind Power: INR 138,000,000 for 2.1 MW Wind Mill

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** |
| 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 MnM. 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 Sustianbility Counicl 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). Erkunt Tractor is the 4th largest tractor company in Turkey, & is also a leading casting & machining company catering to tractor & other industrial machinery.

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. Continuing the R&D efforts to enhance the product offerings Rs 19,919,400,000 were further deployed FY18,

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 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.

F18 onwards portfolio comprises of :

E-Verito: Silent, Smooth & 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 & Passenger Van

eAlfa Mini: Redefining last-mile connectivity, Mahindra’s first electric Rickshaw 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

### **% 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 anticipate setting one in the next 2 years

### **% achieved (emissions)**

0

### **Target status**

Underway

### **Please explain**

The target setting FY2017-2018 was 42786 MTCO2e MORE than actual emissions in FY 2015-2016 Base year, because of high production volume. However there is a reduction of 2.41% in absolute scope 1 emissions (i.e. Actual 41777 MTCO2e) compared to set target of 42786 MTCO2e

### **Target reference number**

Abs 2

### **Scope**

Scope 2 (location-based)

### **% emissions in Scope**

100

### **% 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 anticipate setting one in the next 2 years

### **% achieved (emissions)**

0

### **Target status**

Underway

### **Please explain**

The target setting FY 2017-2018 is more than actual emissions in FY 2015-2016 because of high production volume. There is a reduction of 1.21% in absolute scope 2 emissions compared to F18 set target of 229689 tCO2e (i.e. Actual 226950 MTCO2e)

## **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

### **% reduction from baseline 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 baseline year emissions covered by target (metric tons CO2e)**

0.264

### **Target year**

2021

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

No, but we anticipate setting one in the next 2 years

### **% achieved (emissions)**

48.62

### **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 calendar year. Base line intensity FY16 = 0.26416696 tCO2e/ Vehicle Produced Target current status FY18 = 0.244901735 tCO2e/ Vehicle Produced Target year emissions FY21= 15% < F16 = 0.224541921 tCO2e/ Vehicle Produced Current emission status = (0.264 -0.2449)/0.264 = 7.29% reduced w.r.t base line i.e. FY18 = 7.29% < FY16 % Achieved (emissions) = (7.29%/15%)=48.62%

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

7.8

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

0

### **Target reference number**

Int 2

### **Scope**

Scope 3: Use of sold products

### **% emissions in Scope**

100

### **% reduction from baseline year**

11

### **Metric**

Grams CO2e per kilometer\*

### **Base year**

2015

### **Start year**

2016

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

100

### **Target year**

2019

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

No, but we anticipate setting one in the next 2 years

### **% achieved (emissions)**

9

### **Target status**

Underway

### **Please explain**

Say our Base line year emissions are 100%. our Target is 15% Reduction over base line i.e. 85% of base line emissions Current status = 9% achieved i.e. 91% of base line emissions

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

0

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

9

## **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

### **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**

0.246

### **KPI in target year**

0.485

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

97.2

### **Target Status**

Underway

### **Please explain**

Mahindra n 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 42% of total Scope 1+2 emissions of the company. Here, Vehicle Produced = Equivalent Vehicles of Automotive Division.

### **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**

47

### **Target Status**

Underway

### **Please explain**

Mahindra n 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 35% 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 projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of projects** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 5 | 480 |
| To be implemented\* | 5 | 375 |
| Implementation commenced\* | 14 | 780 |
| Implemented\* | 317 | 17879 |
| Not to be implemented | 0 | 0 |

## **C4.3b**

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

### **Activity type**

Energy efficiency: Building services

### **Description of activity**

Lighting

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

4739

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

37277762

### **Investment required (unit currency – as specified in CC0.4)**

28463070

### **Payback period**

<1 year

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

6-10 years

### **Comment**

Replacement of conventional Lights with LED/ GHID Lights, Occupancy sensors for conference rooms etc

### **Activity type**

Low-carbon energy installation

### **Description of activity**

Solar PV

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

74

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

732888

### **Investment required (unit currency – as specified in CC0.4)**

1525345

### **Payback period**

1-3 years

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

11-15 years

### **Comment**

Solar Street light installed in place of 250 W Sodium Vapour lamps

### **Activity type**

Low-carbon energy purchase

### **Description of activity**

Solar PV

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

476

### **Scope**

Scope 2 (market-based)

### **Voluntary/Mandatory**

Mandatory

### **Annual monetary savings (unit currency – as specified in CC0.4)**

0

### **Investment required (unit currency – as specified in CC0.4)**

702720

### **Payback period**

>25 years

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

1-2 years

### **Comment**

Solar REC's Purchased for RPO Compliance

### **Activity type**

Low-carbon energy purchase

### **Description of activity**

Other, please specify (Captive Wind Power installation )

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

1137

### **Scope**

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Mandatory

### **Annual monetary savings (unit currency – as specified in CC0.4)**

38900000

### **Investment required (unit currency – as specified in CC0.4)**

137000000

### **Payback period**

4 - 10 years

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

21-30 years

### **Comment**

2.1MW wind Power installed for RPO compliance

### **Activity type**

Energy efficiency: Processes

### **Description of activity**

Process optimization

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

3310

### **Scope**

Scope 1

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

32652476

### **Investment required (unit currency – as specified in CC0.4)**

8002633

### **Payback period**

<1 year

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

3-5 years

### **Comment**

Productivity Improvement at Sheet Metal Paint Shop to Utilise tackles gap before colour Changes Productivity improvement in CED Arjun Fuel Fillar Door and Topcoat Dhruv Side Grill Tackle Productivity improvement in CED Battery Retainer and vTackle Productivity improvement in CED KNF Battery Box and Compact Rear Platform Tackle Productivity improvement in CED USMN Front End and KPGRY Side Panel ASSY LH/RH Tackle Productivity improvement in Topcoat and CED Compact Export Fender Tackle Productivity improvement in Topcoat BP Fuel Tank Tackle Productivity improvement in Topcoat Compact Side ROPS and TOP ROPS Tackle Productivity improvement in Topcoat DHRUV SCUTTLE and NBP SCUTTLE Tackle Productivity improvement in Topcoat Export PTO Shaft Cover Tackle etc

### **Activity type**

Process emissions reductions

### **Description of activity**

Changes in operations

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

204

### **Scope**

Scope 1

Scope 2 (location-based)

Scope 2 (market-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in CC0.4)**

1829327

### **Investment required (unit currency – as specified in CC0.4)**

490700

### **Payback period**

<1 year

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

6-10 years

### **Comment**

Low Temperature heat Recovery by using PT Line RC 1 Tank Heat to Top Coat ASU 1. Diesel saving through heat exchanger design change in paint shop. Increase in hanger densityof top bonnet by 100% and side panel by 40%

## **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 RnD. 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**

3.43

### **Comment**

Revenue from Electric vehicle 0.41%, CNG Vehicle 0.42% and diesel/ hybrid vehicle 2.59%, gasoline + CNG (bi-fuel) 0.01% equal to total 3.43% 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 - 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 - 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 increased population. Drip irrigation maximizes water use efficiency and also the productivity. This means that at one hand we will optimize 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. Quality of crop produce 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**

0.42

### **Comment**

MnM is involved in installation of efficient irrigation systems in 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?**

### **Row 1**

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

41777

### **End-year of reporting period**

<Not Applicable>

### **Comment**

Gross global Scope 1 emissions (metric tons CO2e) in 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%

### **Row 2**

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

42093

### **End-year of reporting period**

2017

### **Comment**

Gross global Scope 1 emissions (metric tons CO2e) in a year prior to current reporting year i.e. FY 2017 Scope 1 Increased from previous year by 10% calculation Reduction from previous year = (42,093-38051)/38051=10% Scope 1 Increased due to trails of new press pour machine in foundry. this is temporary in nature yet considered. as it led to increase in productivity by 2

### **Row 3**

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

38051

### **End-year of reporting period**

2016

### **Comment**

Gross global Scope 1 emissions (metric tons CO2e) in TWO years prior to current reporting year i.e. FY 2016 Scope 1 Reduced from previous year by 0.6% calculation Reduction from previous year = (38051-38274)/38051=0.6%

### **Row 4**

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

38274

### **End-year of reporting period**

2015

### **Comment**

Gross global Scope 1 emissions (metric tons CO2e) in THREE years prior to current reporting year i.e. FY 2015

## **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 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?**

### **Row 1**

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

229217

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

226950

### **End-year of reporting period**

<Not Applicable>

### **Comment**

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

### **Row 2**

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

227685

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

211958

### **End-year of reporting period**

2017

### **Comment**

Gross global Scope 2 emissions (metric tons CO2e) in a year prior to current reporting year i.e. FY 2017

### **Row 3**

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

219108

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

204272

### **End-year of reporting period**

2016

### **Comment**

Gross global Scope 2 emissions (metric tons CO2e) in TWO years prior to current reporting year i.e. FY 2016

### **Row 4**

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

216233

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

214093

### **End-year of reporting period**

2015

### **Comment**

Gross global Scope 2 emissions (metric tons CO2e) in THREE years prior to current reporting year i.e. FY 2015

## **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**

5712638.63

### **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 Purchased good and Services scope 3 emissions using this free scope 3 screening tool. Calculation method: For any purchase types identified by the user(MnM) 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(MnM)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 manufacturer of auto mobile 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**

Relevant, calculated

### **Metric tonnes CO2e**

759281

### **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 (MnM) 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(MnM) is the reference flow quantity.

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

0

### **Explanation**

MnM Group focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM Group scope 3 emissions and 2) Influence of MnM 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**

55834

### **Emissions calculation methodology**

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) scope 3 emissions by method given below Scope 1 emissions are multiplied by 0.25 and Scope 2 emissions by 0.20 .

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

100

### **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) scope 3 emissions by method given below Scope 1 emissions are multiplied by 0.25 and Scope 2 emissions by 0.20 .

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

72045

### **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**

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 AR5) are used to calculate the total tCO2e from our inbound logistics.

### **Waste generated in operations**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

125475.85

### **Emissions calculation methodology**

These are negative emissions, that is we have avoided emissions by our waste management practices.Methodology: We track waste generation from different streams, including the nature of waste and disposal method. We report about the waste generation from different sources in our sustainability report.The total waste generated from MnM operations is divided into two categories – Hazardous Waste and Non Hazardous waste.Non-Hazardous waste (95 % of total waste) is fed into Waste Reduction Model given by USEPA. This model returns GHG emissions for the waste data entered. Following is the output from WARM model for F18: Automotive Sector: 87258.21 Tons of CO2e emissions avoided Farm + Swaraj Division: 38217.64 Tons of CO2e emissions avoided. Total MnM Limited: 125475.85 Tons of CO2e emissions avoided.

### **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.Methodology: We track waste generation from different streams, including the nature of waste and disposal method. We report about the waste generation from different sources in our sustainability report.The total waste generated from MnM operations is divided into two categories – Hazardous Waste and Non Hazardous waste.Non-Hazardous waste (95 % of total waste) is fed into Waste Reduction Model given by USEPA. This model returns GHG emissions for the waste data entered. Following is the output from WARM model for F18: Automotive Sector: 87258.21 Tons of CO2e emissions avoided Farm + Swaraj Division: 38217.64 Tons of CO2e emissions avoided. Total MnM Limited: 125475.85 Tons of CO2e emissions avoided.

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

11428

### **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**

Explanation for Relevance: Business air travel is done for finding out new technologies, supplier capability building, customer support, etc. We have robust tracking and recording system in place and records for the business travel are analysed to take business decisions for introducing Video conferencing facilities, shuttle service facilities so that business travel cost as well as cost of it can be reduced and most importantly the productivity of the individuals traveling is enhanced.

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

1756

### **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**

MnM has different programs like car pool, making sustainability personal, cycle to work etc considering the traffic scenarios, employees are encouraged to travel through public transport and also are provided with bus services. We track these emissions on Quarterly basis. Employees using carpool are given preferred parking allotment at most of the locations.

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

We did not had any Up stream leased during the reporting period. hence Scope 3 emissions under Up stream leased assets category is ZERO

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

100

### **Explanation**

We did not had any upstream leased during the reporting period. hence Scope 3 emissions under Upstream leased assets category is Not Relevant/ZERO

### **Downstream transportation and distribution**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

265027

### **Emissions calculation methodology**

We calculate the emissions arising from outbound logistics to 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**

We calculate the emissions arising from outbound logistics to 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 tCO2e from our outbound logistics.

### **Processing of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

MnM is an OEM. Hence there is no further processing of our sold products.

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

100

### **Explanation**

MnM focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM scope 3 emissions and 2) influence of MnM on Emission Reductions. MnM'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 MnM.

### **Use of sold products**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

7583137

### **Emissions calculation methodology**

During the reporting period, 5,48,508 automotive vehicles were sold and 3,17,531 tractors were sold, which contributes to Scope 3 emissions under this category. to calculate scope 3 emissions due to use of sold products: 1) Automotive Division = No. of vehicles sold x emission factor tCO2e per km x 10000 km running per year = 548508 x 0.000924027 x 10000 = 50,68,323 Tons of CO2e 2) Tractors: No. of tractors x diesel consumption (liter) per hour x 1000 hour running per year x diesel CO2 emission factor (kg per litre) = 317531 x 3 x 1000 x 2.64 kg = 25,14,814 tons of CO2e

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

100

### **Explanation**

During the reporting period, 5,48,508 automotive vehicles were sold and 3,17,531 tractors were sold, which contributes to Scope 3 emissions under this category. to calculate scope 3 emissions due to use of sold products: 1) Automotive Division = No. of vehicles sold x emission factor tCO2e per km x 10000 km running per year = 548508 x 0.000924027 x 10000 = 50,68,323 Tons of CO2e 2) Tractors: No. of tractors x diesel consumption (liter) per hour x 1000 hour running per year x diesel CO2 emission factor (kg per litre) = 317531 x 3 x 1000 x 2.64 kg = 25,14,814 tons of CO2e Total Emissions = 50,68,323 + 25,14,814 = 7,583,137 tCO2e

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

### **Evaluation status**

Not relevant, calculated

### **Metric tonnes CO2e**

699626

### **Emissions calculation methodology**

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 F18 x (-1.975)= 248859 x -1.975 = - 491496tCO2e our Bolero maxi truck BMT LCC LCA was conducted with GABI6 software and EOL emission is =-0.96 tCO2e per vehicle. Total passenger Vehicles sold in F18 x (-0.96)= 216802 x -0.96 = -208130tCO2e We acknowledge that considering all passngeer Vehciles sold in F18 as XUV w10 and

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

88

### **Explanation**

MnM focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM scope 3 emissions and 2) influence of MnM on Emission Reductions. According to our estimates the scope 3 emissions of “End of life treatment of sold products” are below 2% of total MnM scope 3 emissions. Furthermore MnM 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 relative 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 particular relevance concerning MnM'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 MnM thru LCA Analysis using GABi6 software This figures was then multiplied with passenger vehicle retail figures which contribute to 48% of vehicles sold by MnM in F18, 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 MnM in F18, to estimate the total CO2-emissions under "End of life treatment of sold products" of MnM. We acknowledge limited accuracy due to the assumptions of “all passenger vehicles sold” has EOL emissions same as XUV 500 W10 model. and "all commercial vehicle sold " has EOL emissions same as BMT LCC.

### **Downstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

0

### **Emissions calculation methodology**

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

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

100

### **Explanation**

We did not had any Downstream leased during the reporting period. hence Scope 3 emissions under Downstream leased assets category is ZERO/ Not Relevant

### **Franchises**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

126072

### **Emissions calculation methodology**

MnM focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM scope 3 emissions and 2) influence of MnM on Emission Reductions. According to our estimates the scope 3 emissions of “Franchises” are below 2% of total MnM scope 3 emissions. Furthermore MnM has limited influence on MnM 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 MnM. Part of this initiative is a National dealer competition on ‘sustainability leadership’ among our entire dealer network. Due to the relative 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 MnM'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 MnM owned dealerships in India, relying on directly monitored information on CO2-emissions. This intensity figures was then multiplied with global retail figures, excluding the retails of MnM owned dealerships, to estimate the total CO2-emissions of MnM's independent dealership network.

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

100

### **Explanation**

MnM focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM scope 3 emissions and 2) influence of MnM on Emission Reductions. According to our estimates the scope 3 emissions of “Franchises” are below 2% of total MnM scope 3 emissions. Furthermore MnM has limited influence on MnM 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 MnM. Part of this initiative is a National dealer competition on ‘sustainability leadership’ among our entire dealer network. Due to the relative 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 MnM'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 MnM owned dealerships in India, relying on directly monitored information on CO2-emissions. This intensity figures was then multiplied with global retail figures, excluding the retails of MnM owned dealerships, to estimate the total CO2-emissions of MnM's independent dealership network.

### **Investments**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

MnM focuses on scope 3 emission categories which are identified as relevant according to the following two criteria: 1) Share in total MnM scope 3 emissions and 2) influence of MnM on Emission Reductions. According to our estimates the scope 3 emissions from “Investments” are significantly below 1% of the total MnM scope 3 emissions. Due to the low amount of emissions in relation to the total MnM 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 21 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**

Please select

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

### **Other (downstream)**

### **Evaluation status**

Please select

### **Metric tonnes CO2e**

### **Emissions calculation methodology**

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

### **Explanation**

## **C6.7**

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

No

## **C6.10**

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

### **Intensity figure**

0.185346538

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

112840

### **Metric denominator**

vehicle produced

*Vehicle Produced is Equivalent Vehicle Produced for Automotive Division of M&M Ltd.*

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

608807

### **Scope 2 figure used**

Market-based

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

3.44

### **Direction of change**

Decreased

### **Reason for change**

Automotive Division Intensity figure for reporting period has reduced to 0.185 tCO2e / Equivalent Vehicle from 0.192 tCO2e/ Equivalent Vehicle in previous year mainly due to VOLUNTARY Energy efficiency projects, process improvements and other initiatives for ENERGY PRODUCTIVITY and to reduce GHG emissions of Automotive division.

### **Intensity figure**

0.19

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

93030

### **Metric denominator**

unit of production

*unit of production= Equivalent tractors produced in the Farm + Swaraj Division*

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

488478

### **Scope 2 figure used**

Market-based

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

6.86

### **Direction of change**

Decreased

### **Reason for change**

Farm+Swaraj Division Intensity figure for reporting period has reduced to 0.190 tCO2e / Equivalent tractor from 0.204 tCO2e/ Equivalent tractor in previous year mainly due to Energy efficiency projects, process improvements and other initiatives for ENERGY PRODUCTIVITY and to reduce GHG emissions of Farm + Swaraj division. F18: Metric numerator (Gross global combined Scope 1 and 2 emissions)=93,030 tCO2e F18: Metric denominator: Unit total=488,478 Eq. tractors produced F18: Intensity = 93030/488478 = 0.190 tCO2e / Eq. tractors produced F17: Metric numerator (Gross global combined Scope 1 and 2 emissions)= 86,539 tCO2e F18: Metric denominator: Unit total= 423592 Eq. tractors produced F17 Intensity = 86539/423592 = 0.204 tCO2e / Eq. tractors produced F18 Vs F17 change: Numerator = (0.204-0.190) tCO2e Denominator = 0.190 tCO2e Change from previous year= 6.86% Reduced

### **Intensity figure**

0

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

270994

### **Metric denominator**

unit total revenue

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

494450000000

### **Scope 2 figure used**

Location-based

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

3.7

### **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) F2018 Intensity Metric: 0.00000055 tCO2e /INR 3.7% Reduced w.r.t. F2017 F2018 Numerator: MnM's Scope 1+2 emissions (Location based) : 270994 tCO2e which has Increased by 0.5 % compared to previous year. F2018 Denominator:Unit total revenue: INR 4,94,45,00,00,000/- Rise of 4.35% over previous for year. F2017 Intensity Metric: 0.00000057 tCO2e /INR F2017 Numerator: MnM's Scope 1+2 emissions (Location based) : 269778 tCO2e F2017 Denominator: MnM's Unit total Revenue: INR 473,840,000,000/- 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 (42%) 2) For Farm +Swaraj Division tCO2e /Equivalent Tractors produced , (34.6%) both metrics combined together represents 77% of total Gross Scope 1+2 emissions.(t CO2e) For Auto Division and Farm + Swaraj Division the intensity has reduced more than 3% in each divisions same has been given above

## **C7. Emissions breakdowns**

## **C7.1**

### **(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

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 | 41658 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| CH4 | 41 | IPCC Fifth Assessment Report (AR5 – 100 year) |
| N2O | 78 | 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 | 41777 |

## **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 | 17972 |
| FD-Farm divison | 12904 |
| SD-Swaraj Division | 5786 |
| SBU - Spares Business Unit | 155 |
| MRV - Mahindra Research Valley | 4959 |
| Worli Mumbai (CC) | 0.25 |

## **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) | 149 | 29.94791 | 78.16025 |
| Igatpuri (AD) | 988 | 19.69511 | 73.56215 |
| Kandivli (AD) | 6919 | 19.204529 | 72.851995 |
| Nashik Plant 1(AD) | 7101 | 19.98333 | 73.8 |
| Nashik Plant 2 (AD) | 29.3 | 20.002469 | 73.726445 |
| Zaheerabad (AD) | 2785 | 17.68068 | 77.61164 |
| Jaipur (FD) | 952 | 26.92557 | 75.80637 |
| Kandivli (FD) | 3677 | 17.86667 | 73.23333 |
| Nagpur (FD) | 3409 | 21.15707 | 79.08218 |
| Rudrapur (FD) | 1818 | 26.4461 | 83.61473 |
| Zaheerabad (FD) | 3048 | 17.68068 | 77.61164 |
| Swaraj Foundry ( Mohali) | 1081 | 30.839594 | 76.670496 |
| Swaraj Plant 1 (Mohali) | 1834 | 30.721123 | 76.710099 |
| Swaraj Plant 2 (Mohali) | 2871 | 30.70347 | 76.659055 |
| Bhiwandi (SBU) | 28.3 | 19.29711 | 73.0635 |
| Hyderabad (SBU) | 3.44 | 17.39487 | 78.47076 |
| Jaipur (SBU) | 21.2 | 26.92557 | 75.80637 |
| Kanhe (SBU) | 81.8 | 18.727736 | 73.654434 |
| Vadgoan (SBU) | 20.5 | 18.7419 | 73.63508 |
| Mahindra Research Valley, Chennai | 4959 | 13.08362 | 80.28252 |
| Worli Mumbai (CC) | 0.25 | 19.016671 | 72.816661 |

## **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 | 0 |
| Manufacturing @ Auto Division 5 plants Farm Division 5 plants Swaraj Foundry Swaraj Division 2 plants Nashik Tool and Die plant | 36662 |
| Warehouses 5 Warehouses in Spare Business Unit | 155 |
| Research and Development center @ MRV Chennai | 4959 |

## **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 | 17972 | <Not Applicable> | Automotive Division contributes to 42% of the Mahindra n Mahindra Ltd.'s Scope 1+2 emissions emission and 63.9% of the total companies revenue. |
| 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 | 229217 | 226950 | 288501.66 | 3708.84 |

## **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 | 97147 | 97147 |
| FD-Farm divison | 48619 | 48619 |
| SD- Swaraj divison | 54686 | 54686 |
| Spares Business Unit | 1919 | 1919 |
| Mahindra Research Valley | 22177 | 22177 |
| Worli Mumbai (CC) | 2403 | 2403 |

## **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) | 1308 | 1308 |
| Igatpuri (AD) | 5977 | 5977 |
| Kandivli (AD) | 49663 | 49663 |
| Nashik Plant 1(AD) | 31075 | 31075 |
| Nashik Plant 2 (AD) | 2250 | 2250 |
| Zaheerabad (AD) | 6875 | 6875 |
| Jaipur (FD) | 1457 | 1457 |
| Kandivli (FD) | 17626 | 17626 |
| Nagpur (FD) | 16201 | 16201 |
| Rudrapur (FD) | 4799 | 4799 |
| Zaheerabad (FD) | 8536 | 8536 |
| Swaraj Foundry (Mohali) | 27884 | 27884 |
| Swaraj Plant 1 (Mohali) | 12431 | 12431 |
| Swaraj Plant 2 (Mohali) | 14371 | 14371 |
| Bhiwandi (SBU) | 329 | 329 |
| Hyderabad (SBU) | 32.8 | 32.8 |
| Jaipur (SBU) | 655 | 655 |
| Kanhe (SBU) | 780 | 780 |
| Vadgoan (SBU) | 123 | 123 |
| Mahindra Research Valley, Chennai | 22177 | 22177 |
| Worli Mumbai (Corporate Center) | 2403 | 2403 |

## **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 | 2403 | 2403 |
| Manufacturing @ Auto Division 5 plants Farm Division 5 plants Swaraj Foundry Swaraj Division 2 plants Nashik Tool and Die plant | 202718 | 200452 |
| Warehouses 5 Warehouses in Spare Business Unit | 1919 | 1919 |
| Research and Development center MRV Chennai | 22177 | 22177 |

## **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 | 94897 | 96634 | Automotive Division contributes to 42% of the Mahindra n Mahindra Ltd.'s Scope 1+2 emissions emission and 63.9% of the total revenue. |
| 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**

0.000373

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

1196993.07

### **Metric denominator**

t.km

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

3203552177

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

-1.27

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

271427

### **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. 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% Life time emissions 1196993.07 tCO2---->Numerator 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 reporting year) = 3203552177 t.Km Metric calculations = Numerator/ Denominator = 1196993.07 tCO2 / 3203552177 t.Km = 0.000373 tCO2/ t.Km for current reporting year Previous year Numerator: Numerator Calulations No of CV's sold 233254 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 147 gCO2/km Load factor 20% Life time emissions =1028650.14 tCO2 F17 Numerator Denominator calculations No of CV's sold 233254 Distance traveled in a year 10000 Vehicle life 15 Load factor 20% tonnage per Vehicle 2.57 Weighted average of Commercial vehicles sold in reporting year = 2717995414 tKm Metric F17 = 0.000378459 tCO2/t.Km % Change F18 Vs F17: (Metric F18-Metric F17)/ Metric F17= - 1.27% i.e.Reduction of 1.27% over previous year

### **Activity**

Light Duty Vehicles (LDV)

### **Emissions intensity figure**

0.000158

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

8257141.62

### **Metric denominator**

p.km

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

52260390000

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

3.27

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

248859

### **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**

Methodology used for calculation is given below: F18 Calculations: Numerator Calculations: No of Passenger Vehicle's sold 248859 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 158 gCO2e/km Load factor 1.40 persons per vehicle Life time emissions 8257141.62 tCO2e Denominator calculations No of Passenger Vehicle's sold 248859 Distance traveled in a year 10000 Vehicle life 15 Load factor 1.40 persons per vehicle = No of Vehicle sold x Distance traveled in a year x vehicle life x load factor Passenger km covered = 52260390000 pKm Metric F18 0.000158 tCO2e / p.Km calculated as given above Metric F17 0.000153 tCO2e / p.Km calculated as given below: F17 Calculations: Numerator Calculations: No of Passenger Vehicle's sold 236130 Distance traveled in a year 10000 km Vehicle life 15 years emission factor 153 gCO2e/km Load factor 1.40 persons per vehicle Life time emissions 7586856.9 tCO2e ----->Numerator F17 Denominator calculations No of Passenger Vehicle's sold 236130 Nos Distance traveled in a year 10000 km Vehicle life 15 years Load factor 1.40 persons per vehicle = No of Vehicle sold x Distance traveled in a year x vehicle life x load factor= No of Vehicle Passenger km covered = 49587300000 p.Km \_\_\_\_>Denominator F17 Metric F17 0.000153 tCO2e / p.Km % Change (F18 Vs F17) = 3.27% (Due to change in Vehicle emission norms from BS III to BS IV w.e.f. 1st Apr 2018)

## **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 | 2267 | Decreased | 0.89 | Numerator : Change in renewable energy consumption = -2267 tCO2e Denominator: Previous years Scope 1 + 2 emissions = 2,54,051 tCO2e % Change in emissions = -2267/ 254051 =- 0.89% i.e. Negative sign indicates Reduction in emission due to renewable energy |
| Other emissions reduction activities | 17879 | Decreased | 7.04 | Numerator : change in emissions attributed to Other emissions reduction activities= -17879 tCO2e Denominator: Previous years Scope 1 + 2 emissions = 2,54,051 tCO2e % Change in emissions = -17879/254051 =- 7.04% |
| Divestment | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Acquisitions | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Mergers | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Change in output | 14676 | Increased | 5.78 | Numerator : change in emissions attributed to Change in output= 14676 tCO2e Denominator: Previous years Scope 1 + 2 emissions = 2,54,051 tCO2e % Change in emissions = 14676/254051 = 5.78% |
| Change in methodology | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Change in boundary | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Change in physical operating conditions | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Unidentified | 0 | No change | 0 | Not applicable to scope of reporting hence No change |
| Other | 0 | No change | 0 | Not applicable to scope of reporting hence No change |

## **C7.9b**

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

Market-based

## **C8. Energy**

## **C8.1**

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

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

## **C8.2**

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

|  |  |
| --- | --- |
|  | **Indicate whether your organization 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 | 184629.11 | 184629.11 |
| Consumption of purchased or acquired electricity | <Not Applicable> | 3708.84 | 279529.18 | 283238.02 |
| 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> | 5262.75 | <Not Applicable> | 5262.75 |
| Total energy consumption | <Not Applicable> | 8971.59 | 464159 | 473131 |

## **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 | No |
| 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**

47442

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

<Not Applicable>

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

47442

### **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>

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

Liquefied Petroleum Gas (LPG)

### **Heating value**

HHV (higher heating value)

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

24611

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

<Not Applicable>

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

24424

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

<Not Applicable>

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

187.6

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

<Not Applicable>

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

Natural Gas

### **Heating value**

HHV (higher heating value)

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

77248

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

<Not Applicable>

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

77248

### **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>

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

Petrol

### **Heating value**

HHV (higher heating value)

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

3879

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

<Not Applicable>

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

3879

### **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>

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

Propane Liquid

### **Heating value**

HHV (higher heating value)

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

31449

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

<Not Applicable>

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

31449

### **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>

## **C8.2d**

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

### **Diesel**

### **Emission factor**

0.00264

### **Unit**

metric tons CO2e per liter

### **Emission factor source**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Comment**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

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

### **Emission factor**

2.98

### **Unit**

metric tons CO2e per metric ton

### **Emission factor source**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Comment**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Natural Gas**

### **Emission factor**

2.18846

### **Unit**

metric tons CO2e per m3

### **Emission factor source**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Comment**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Petrol**

### **Emission factor**

0.0023

### **Unit**

metric tons CO2e per liter

### **Emission factor source**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Comment**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Propane Liquid**

### **Emission factor**

2.98217

### **Unit**

metric tons CO2e per metric ton

### **Emission factor source**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

### **Comment**

Calculation done as per methodology given in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Fifth Assessment Report (AR5 – 100 year)

## **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 | 8972 | 8972 | 8972 | 8972 |
| Heat | 0 | 0 | 0 | 0 |
| Steam | 0 | 0 | 0 | 0 |
| Cooling | 0 | 0 | 0 | 0 |

## **C8.2f**

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

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

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

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

3708.84

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

0

### **Comment**

MWh consumed associated with low-carbon electricity: We have 5.4MWp Solar Power plants installed with in our plant premises, the power generated thru them is 100% used for plant operations.

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

Other, please specify (2.1MW Captive Wind Mill @ Sangli-JTH117)

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

Wind

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

5262.75

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

0

### **Comment**

2.1MW Wind Power installed at Jath Sangli for Self Captive use. Actual units generated by wind mill wheeled to our manufacturing sites in Kandivali(AD) and Nashik Plant-1(AD) units reported above are net of Transmission Losses of 3.92% and wheeling Loss of 6% in MSEDCL network Plus 0.9% Wheeling Losses in Tata Power network before coming to our metering/consumption point.

## **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**

158

### **Metric numerator**

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

### **Metric denominator**

Use phase: Vehicle.km

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

158

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

1

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

3.2

### **Please explain**

Due to regulatory up-gradation from BS III to BS IV and dip in sales volume of low emitting vehilces, the average CO2 efficiency has slightly increased from 153 to 158 gms of CO2/Km. However the values are still below the CAFE Margins. The above figures are as per 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 salesweighted 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 apreset duration and switches the engine on, the instant your leg presses the clutch pedal. 2) Light weighting of the products 3) Life Cycle assessments

## **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**

1773

### **Metric numerator**

Recycling of our Hazardous waste

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

This is an Absolute metric, hence no denominator

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

48.7

### **Direction of change**

Decreased

### **Please explain**

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 audit-able data acquisition and aggregation system. 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 which are currently sending to landfill are awaiting relevant consents/ approvals for co-processing. Total Hazardous Waste Generated in current year was 3695 Metric Tonnes and out of which 1922 Metric Tonnes was recycled. Total non- hazardous waste is also Recycled through authorised recycler approved by respective state pollution control boards

## **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**

5119

### **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 has dominance of 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 MnM already has expertise in. “That technology already exists. The cost increase of a CNG car compared to a petrol car is very small, around Rs 40,000, “So customers buy it happily.” MnM 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 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**

4026

### **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 domanance in this fuel segment, combined with the unpredictable trajectory of battery prices and the peculiarity of the automobile market itself.

### **Activity**

Light Duty Vehicles (LDV)

### **Metric**

Sales

### **Technology**

Conventional hybrid

### **Metric figure**

14739

### **Metric unit**

Units

### **Explanation**

This eagerness for Conventional Hybrid Vehicle 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%) 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 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 demonstration to Govt. of India and anticipate that they will be vehicle of 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 2017

### **Investment end date**

March 31 2018

### **Investment area**

R&D

### **Technology area**

Electrification

### **Investment maturity**

Full/commercial-scale demonstration

### **Investment figure**

19919400000

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

21-40%

### **Please explain**

Government of India’s scheme of FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles-Phase-I) was launched in Apr'15 to promote electric vehicles on road has been extended by another 6 months till Sept 2018 or till launch of Phase-II. For this, infrastructure is set up. This is going to increase the demand for MnM’s electric vehicles. 1% increase in revenue is equivalent to INR 3180000000/- MnM Limited is already in the business of manufacturing of Electric Vehicles. The Sales volume is picking up every year. Sales volume for electric vehicles F18 (4026 Nos) compared to F17(1021 Nos). Further RnD 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 endeavour 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. 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, Mahindra’s first electric Rickshaw and other projects are in various RnD stages and likely to be commercialised in coming year.

## **C10. Verification**

## **C10.1**

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

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

## **C10.1a**

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

### **Scope**

Scope 2 market-based

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

Annual process

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

Complete

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

Moderate assurance

### **Attach the statement**

[M&M GHG Assurance Statement 2017-18 (CDP).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/7DB4gdEN5UOSz4vuQwrAZA/MMGHGAssuranceStatement201718CDP.pdf)

[Mahindra Environment Performance 2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/zZwtl_MyAkOCKEl8XaY5VQ/MahindraEnvironmentPerformance201718.pdf)

### **Page/ section reference**

The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. Under section : Scope, Boundary and Limitations of Verification The scope of work agreed upon with Mahindra n Mahindra includes the following: • Verification of the GHG emissions (Scope 1, Scope 2 and Scope 3)

### **Relevant standard**

DNV Verisustain Protocol/ Verification Protocol for Sustainability Reporting

*DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines.*

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

100

[M&M GHG Assurance Statement 2017-18 (CDP1).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/IfQ8wgz2zkSsmbwwxEdVIg/MMGHGAssuranceStatement201718CDP1.pdf)

### **Scope**

Scope 1

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

Annual process

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

Complete

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

Moderate assurance

### **Attach the statement**

[M&M GHG Assurance Statement 2017-18 (CDP).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/7DB4gdEN5UOSz4vuQwrAZA/MMGHGAssuranceStatement201718CDP.pdf)

### **Page/ section reference**

The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. On Page 1 under section : Scope, Boundary and Limitations of Verification The scope of work agreed upon with Mahindra n Mahindra includes the following: • Verification of the GHG emissions (Scope 1, Scope 2 and Scope 3)

### **Relevant standard**

DNV Verisustain Protocol/ Verification Protocol for Sustainability Reporting

*DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines.*

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

100

[M&M GHG Assurance Statement 2017-18 (CDP2).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/ZoCedo5L1kuwjw5sVMX1NQ/MMGHGAssuranceStatement201718CDP2.pdf)

## **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**

Complete

### **Attach the statement**

[M&M GHG Assurance Statement 2017-18 (CDP).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/7DB4gdEN5UOSz4vuQwrAZA/MMGHGAssuranceStatement201718CDP.pdf)

### **Page/section reference**

Scope, Boundary and Limitations of Verification The scope of work agreed upon with Mahindra n Mahindra includes the following: • Verification of the GHG emissions (Scope 1, Scope 2 and Scope 3) as below: o Scope 3 emissions from purchase of goods and services (inbound and outbound), business travel, employee commute and usage of paper only.

### **Relevant standard**

DNV Verisustain Protocol/ Verification Protocol for Sustainability Reporting

*The verification provides a limited level of assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines.*

## **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?**

[M&M GHG Assurance Statement 2017-18 (CDP3).pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/nN2wdcuyuESuvYlV2WCq4w/MMGHGAssuranceStatement201718CDP3.pdf)

[Mahindra Environment Performance 2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/zZwtl_MyAkOCKEl8XaY5VQ/MahindraEnvironmentPerformance201718.pdf)

|  |  |  |  |
| --- | --- | --- | --- |
| **Disclosure module verification relates to** | **Data verified** | **Verification standard** | **Please explain** |
| C4. Targets and performance | Progress against emissions reduction target  *Please refer pages 15-18 for Sustainability Roadmaps* | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.pdf) |
| C5. Emissions performance | Year on year change in emissions (Scope 1)  *Please refer pages 51 & 52 of Mahindra SR 2017-18* | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.pdf) |
| C6. Emissions data | Year on year change in emissions (Scope 2)  *Please refer pages 51 & 52 of Mahindra SR 2017-18* | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.pdf) |
| C5. Emissions performance | Year on year change in emissions (Scope 3)  *Please refer pages 51-52 of Mahindra SR 2017-18* | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai; |
| C5. Emissions performance | Year on year emissions intensity figure  *Please refer pages 51-52 of Mahindra SR 2017-18* | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.pdf) |
| C5. Emissions performance | Emissions reduction activities | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.pdf) |
| C9. Additional metrics | Other, please specify (Waste reduced) | The verification provides assurance as per DNV GL VeriSustainTM protocol, which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) Revised\* and GRI guidelines. | DNV GL verification engagement included Moderate 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 2017 to 31st March 2018 and pertaining to operations at 21 locations in India. Verification applies applies a ±5% uncertainty threshold towards errors and omissions. The verification was conducted by DNV GL in accordance with the requirements set out in VeriSustain, for a moderate level of verification. DNV GL carried out the following activities: • Desk review of Mahindra and Mahindra’s reported emissions as provided to us in spreadsheets; • Management interaction on data management systems of Mahindra n Mahindra including review of emission factors and assumptions; • Onsite verification of data aggregation systems and related evidences related to Scope 1 and Scope 2 emissions reported for sample locations at a) Kandivli unit (Auto and Farm sector) b) Swaraj Plants (1 and 2) c) Spare Business Unit at Kanhe and d) Mahindra Research Valley, Chennai; e) Mahindra Towers, Worli • Review of consolidated data and reported Scope 3 emissions at Corporate Office at Mumbai;  [Mahindra SR\_2017-18.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Y3C6g0Bt0Uy84webLHoMGw/MahindraSR201718.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 2017

### **Period end date**

March 31 2018

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

1

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

4616662

### **Comment**

REC's Procured for RPO compliance as per MERC, RPO Regulations 2016

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

### **Period start date**

April 1 2017

### **Period end date**

March 31 2018

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

2.7

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

709081

### **Comment**

GREEN ENERGY CESS on Electricity purchased at Uttarakhand plants (AD Haridwar and FD Rudrapur) Uttarakhand Power Corporation Limited (UPCL) levies Rs 0.10 per unit of electricity procured as per "The Uttarakhand Green Energy Cess Act, 2014" for F18 AD Haridwar : 1580788 units consumed = Rs 158079.00 paid to UPCL as Green energy Cess FD Rudrapur = 5510020 units consumed = Rs 551002.00 paid to UPCL as Green energy Cess Total F18 : 7090808 units consumed and Rs 709081.00 paid to UPCL as Green energy Cess

## **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 F18 :

AD Haridwar : 1580788 units consumed = Rs 158079.00 paid to UPCL as Green energy Cess

FD Rudrapur : 5510020 units consumed = Rs 551002.00 paid to UPCL as Green energy Cess

Total F18 : 7090808 units consumed and Rs 709081.00 paid to UPCL as Green energy Cess

however, in F19 we are installing solar power plants at AD Haridwar & FD Rudrapur, so that the green cess paid is reduced along with the carbon footprint of the company.

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 foot print and the financial impacat 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))

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

Also Company had seen an opportunity in terms of MERC RPO Regulations 2016, where in 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 own solar projects.

Example : In F16 2.1MW x2 wind power projects @ Sangli Maharashtra catering to 85% of RPO requirements .

21.MW wind Power project @ Aurangabad in F18 and has plan to add more in coming years to go beyond the RPO compliance requirements.

Similarly 5.4MWp Solar Power projects till F18 set up with in plant premises to meet 85% of RPO requirement and further projects to the tune of 4MWp in pipeline which will be beyond the RPO compliance requirements.

In the reporting period Investment to the tune of INR 313700000 was made to implement the wind and solar power project along with the other energy efficiency projects . The investment translates to INR 1167/ tCO2(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 nMahindra Ltd. had set up 2.1MW x 2 wind mills at Sangli in Maharashtra which generated 70,11,934 units in the reporting period. As per the Central Electricity authority of India, GHG Emission factor is 0.82 kg of CO2e per unit of Electricity procured from Grid. (verified by DNV GL) thus, 5750 tons of CO2e emissions avoided. Equivalent to 5750 Carbon credits originated.

### **Verified to which standard**

Not yet verified

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

5750

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

5750

### **Credits cancelled**

Yes

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

Compliance

*Wind Power used for RPO compliance, hence CO2e credits Not available for further utilisation*

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

Credit origination

### **Project type**

Solar

### **Project identification**

We have 5.4MW Solar PV plants installed with in our plant premises which generated 2071.9444 MWh in F18. As per the Central Electricity authority of India, GHG Emission factor is 0.82 kg of CO2e per unit of Electricity procured from Grid. thus, 1699 tons of CO2e emissions avoided. Equivalent to 1699 Carbon credits originated.

### **Verified to which standard**

Not yet verified

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

1698.99

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

1698.99

### **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

Drive energy efficiency

Drive low-carbon investment

Identify and seize low-carbon opportunities

### **GHG Scope**

Scope 1

Scope 2

### **Application**

In F16, MnM 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)) The move was in-line with 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 313,700,000/- was made to implement the wind and solar power project along with the other energy efficiency projects . The investment translates to INR 1167/ tCO2(scope 1+2). Investment (Numerator) = Rs 31,37,00,000/- Scope 1+ Scope 2 emissions Denominator = 2,68,727 tCO2 (Market based)

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

1167

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

As of now, we have been using fixed US$10 per ton of carbon emission as our Internal Carbon price. We shall be exploring the variance in price(s) based on the further study by developing scenarios and seek top managements approval.

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

Internal fee

### **Impact & implication**

The company made investment of Rs 31,37,00,000/- in F18 which is 20.7% higher than F17 . Resulting in restricting Scope 1 + Scope 2(Market based) emissions to 2,68,727 tCO2e which would other wise have been 286606 tCO2e. i.e. Avoiding 17,879 tCO2e in 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)**

32.3

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

26.7

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

The Code of Conduct is an important part of supplier boarding process and helps drive company culture, reputation and compliance with the suppliers. MnM 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 production or services in-house. In addition, 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 its 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 behaviour 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. The MnM Ltd. Code of Conduct focuses on areas of Ethical business standards, Commitment towards its associates, suppliers, customers and environment, Commitment to stakeholders, Behaviour at 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 MnM Ltd. has 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 last 3-4 years and launched newly revised “Supplier Code of Conduct” in Mar’18, which is publicly available. We have online system (SOP) for undertaking from supplier through “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 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 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. Training module is also provided to ensure that they adequately understand and are able to comply with (or create systems to ensure that their organization complies with) the company's code of conduct. Measure of success: Selection process has weightage (varies for commodities) for MnM’s sustainability requirements in their quotation. Self-assessments on the sustainability parameters followed by MnM’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 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 carries a minimum weightage of 10 % in new supplier evaluation criteria. A supplier must score minimum 60% for onboarding by MnM 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/RnD person, process engineering, goes for onsite assessment and suppliers are inducted based on Productivity, Quality, Cost, Delivery, Safety, Motive (PQCDSM), technology on offering, ESG parameters. This practice will be continued in 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 on boarding, 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 minimum 60% for on boarding by MnM 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**

Information collection (understanding supplier behavior)

### **Details of engagement**

Collect climate change and carbon information at least annually from suppliers

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

10.67

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

32.3

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

26.7

### **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**

Balance score card has been devised to track progress against 9 Sustainability parameters like Energy, water for Suppliers and observed that 51 of the suppliers has reduced their specific energy consumption and 48 suppliers reduced their water and waste consumption more than 3% compared to previous year. Measure of success: Selection process has weightage (varies for commodities) for MnM’s sustainability requirements in their quotation. Self-assessments on the sustainability parameters followed by MnM’s assessment to declare Green Supplier of the year wherein they are given preference over other suppliers, Recognized in Annual Sustainability suppliers meet.

### **Comment**

We believe that “supply chain sustainability can no longer be ignored.”. We, are taking action 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. 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 footprint of your supply chain. 1 cost optimization. Sustainability, especially in supply chain logistics, often goes hand-in-hand with efficiency. Eliminating excess carbon emissions from your logistics chain is similar to eliminating any other waste of resources leading to more sustainable supply chains. And just like eliminating waste of any other valuable resource, 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 in their own right. 2 Brand and reputation management 3 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. 4 Finally, measuring and managing the carbon 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.

### **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

Other, please specify (LED Light replacement at low cost.)

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

10.7

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

32.3

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

26.7

### **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 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 andWater 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**

In F18, 2 sessions on sustainability were conducted thru Det Nroske Veritas (DNV GL) for MnM Suppliers via VC covering 129 suppliers and 30 Supplier on-site training at Swaraj, Mohali. 40 Suppliers attended Sustainability Parameters improvement workshop in Kandivali. Collectively we have trained 200 suppliers in F18 and 772 suppliers have been covered for supplier sustainability awareness so far in last four years. 80 Suppliers have adopted the Balance Score Card review mechanism and Balance score card has been devised to track progress against 9 parameters and observed that 51 of the suppliers has reduced their specific energy consumption and 48 suppliers reduced their water and waste consumption more than 3% compared to previous year. MnM has helped this 80 supplier to get Lighting changed to LED lights thru Energy Efficiency Services Limited (EESL) UJALA scheme.

### **Comment**

MnM had aggregated the LED light requirement from this 80 suppliers and thru Strategic sourcing unit (SSU) and Capital purchase team LED lights were arranged at low cost and delivered to suppliers thru Energy Efficiency Services Limited (EESL) UJALA scheme.

## **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

### **Size of engagement**

100

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

100

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

We strongly believes that satisfaction of the customer needs on continuing basis is of prime importance to earn the loyalty of the customers. Thus, emphasis on meeting and exceeding the customer needs through continuing with active participation of customers. There were several initiatives within 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 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 brand would derive value from each different initiative and inject value back in each one of them. This gives ALL our consumers and customers a greater common thread to hold on to. In 2017, all of this came together in our first ‘Integrated Report’ called ‘Rise for Good’. This brought forth the 6 capitals that we believe is key to sustainability in all its forms viz. Financial, Manufacturing, Intellectual, Human, Natural and Social and Relationship Capitals. This year, we have launched a film (https://www.youtube.com/watch?v=Is6aoNH9aBI) which portrays the work done by Mahindra. Using social media, at least 3 posts are created for "Rise for Good' every week. Because of such content posted, we have been consistently among the top 5 fastest growing Brands on twitter in India. A good example of a post created for "Rise for Good" is the Mahindra Hariyali video (https://www.youtube.com/watch?v=SdYSUqNbljQ), which depicts Chief Minister Devendra Fadnavis and Mr. Anand Mahindra planting the 13th Millionth tree by the Mahindra Group. We believe caring for the planet is cardinal in every business decision. Therefore, we have been a part of many initiatives that lead the forefront of Indian brands on Climate Change. We have a large electric vehicle portfolio. We are one of the first Indian companies to have an internal carbon price, and are signatories of EP100. Our Chairman, Mr.Anand Mahindra has spoken at the UN as the chosen representative for businesses across the world for the Signature Ceremony of the Paris Agreement (http://webtv.un.org/watch/anand-mahindra-business-representative-highlevel-%20signature-ceremony-for-the-paris-agreement-opening-session/4857639551001/?lan=french?lan=English)

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

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. Using social media, at least 3 posts are created for "Rise for Good' every week. Because of such content posted, we have been consistently among the top 5 fastest growing Brands on twitter in India. In terms of bench-marking, communications that we have put out has led to Mahindra being ranked as one of the Most Environmentally Responsible Company in India. Our Chairman, Mr. Anand Mahindra has spoken at the UN as the chosen representative for businesses across the world for the Signature Ceremony of the Paris Agreement. As we believe that together we can limit the global climate change effect of Global warming below 2deg C, our chairman at World economic forum held at Davos(F18) issued Call to action, to all fellow corporate's to adopt Science based targets,25th Jan'18 since then 123 companies have committed to set Science based targets till 25th Jul'18

## **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's 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

(C) Actions advocated: We strongly propagate following:

- *Front Loading of Incentive, at least for first 1-2 million EVs*

*- Mandating the use of EV*s 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, multistore 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 R&D, 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*

## **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 vairous 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 initatives 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, MnM , 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, or are you attempting to, influence the 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 nationalised 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 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

### **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, or are you attempting to, influence the position?**

By the consistent membership of the association and by the regular participation in all relevant working groups. MnM 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, or are you attempting to, influence the 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 RnD, 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, or are you attempting to, influence the position?**

We have consistent membership in ARAI thur Mahindra n 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.

### **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. 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.

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

Consistent

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

We are member of the TERI and on Business Advisory Board. We constantly interacts and engages with other stakeholders to spread awareness and share recommendations for various new or updates to existing policies.

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

We are member of the TERI and on Business Advisory Board. we constantly interacts 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 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 5.4MWp 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 in accordance with the CDSB Framework

### **Status**

Complete

### **Attach the document**

[Mahindra-and-Mahindra-Annual-Report-2017-2018.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rW0qHqpKdEe2VeOxZ_C3kA/MahindraandMahindraAnnualReport20172018.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

### **Publication**

In voluntary sustainability report

### **Status**

Underway – previous year attached

### **Attach the document**

[Mahindra-Integrated-Report-FY17.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/mdcT2zDOXka2EKcV983jOw/MahindraIntegratedReportFY17.pdf)

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

## **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.**

We have a Sustainability framework in place to drive Sustainability. refer the attached file "Framework with copyright.pdf"

Mahindra Challenge:

Anand Mahindra, chairman of the Mahindra Group, is challenging all businesses around the world to set a [science-based emissions reduction target](https://sciencebasedtargets.org/) ahead of this September’s [Global Climate Action Summit](https://globalclimateactionsummit.org/) in California.

Mahindra laid down the challenge at the World Economic Forum in Davos, whilst committing to set science-based targets for all the companies in the $19 billion Indian conglomerate.

“I am inviting all companies, particularly those that emit the most, to commit to set science-based targets,” Mahindra said.

“Over the course of 2018, I will be working to expand the adoption of science-based targets not only across the Mahindra Group, but amongst my business colleagues so that by the Global Climate Action Summit in September, 500 companies step up and commit to set science-based targets,” he said. Mahindra is co-chair of the Summit in California.

Mahindra also said 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.”

[Framework with copyright.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Sul1QY5Yv0SQuVGNY1bmSA/Frameworkwithcopyright.pdf)

## **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 | Mr. Ulhas Yargop, Group President IT Sector and Group CTO is on the Group Executive Board; Chairs Group Sustainability Council, reviews progress (Qtrly) of integration of ESG parameters in business | Board/Executive board |