

CLIMATE ACTION POSITION STATEMENT

The current situation

Humanity's greenhouse gas (GHG) emissions have changed the composition of our atmosphere and the climate that surrounds us. Around the world, people are beginning to feel the effects, from increased average and extreme temperatures, to changes in rainfall patterns, to more severe and less predictable storms. There are clear signals that the climate has changed over the last century. Climate scientists measured 2016 as the warmest year on record, and 18 of the 19 warmest years have occurred since 2001 (NASA, 2019). What's more, climate scientists, through the Intergovernmental Panel on Climate Change (IPCC) published an eye-opening [report](#) showing the significantly greater risks we face if we don't limit climate change to 1.5°C. The scientific consensus on the need for urgent action is clear.

Mars recognizes our responsibility to address the environmental and social impacts of our business. That is why we launched our [Sustainable in a Generation \(SIG\) Plan](#) in 2017 with an initial investment of \$1 billion. Tracking and reducing GHG emissions to lessen our climate change impact are key aspects of our SIG Plan, and provide important opportunities to help drive momentum for global climate action.

Science tells us that to avoid the worst consequences, we should limit the increase in global average temperature to well below 2°C above pre-industrial levels, a threshold outlined in the international Paris Agreement on climate change. To stay beneath this threshold, scientists estimate that no more than 1 trillion tonnes of carbon dioxide can be added to the atmosphere. This is called the "carbon budget". Global emissions since 1870 have already consumed more than half of that budget, leaving less than 500 billion tonnes to emit in the future.

The urgency of climate change is recognized in the UN Sustainable Development Goals (SDGs) – SDG 13 calls for "urgent action to combat climate change and its impacts." Mars supports the SDGs and recognizes the need for engaging others to collectively play our part in addressing climate change, as no single company can make meaningful progress alone.

Mars' full value chain GHG emissions in 2015 were estimated at 33 million tonnes of carbon dioxide equivalent (MtCO₂e) – larger than the GHG footprints of some countries. While energy use is a significant driver of our operational emissions, agriculture and land use change emissions make up the lion's share – approximately 80% – of our full value chain emissions (figure 1). With that in mind, we are focusing our climate change actions in the areas of our business that involve producing and purchasing agricultural raw materials. Ultimately, by doing everything we can to reduce our GHG footprint consistent with the global goal, we aim to achieve real, positive impacts on our business, people, and the planet.

Climate change is also intrinsically linked with Mars' other sustainability priorities. It will impact water scarcity, while land use choices can either drive or mitigate climate change. The strategic approaches we choose to address climate change in our value chain have implications for human rights and the incomes of farmers who grow the materials we source.

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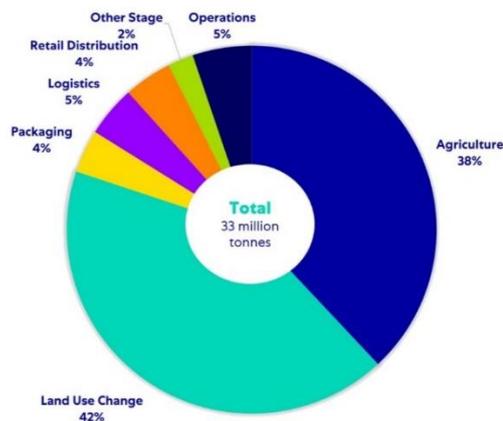
Our long-term ambition

Mars' climate change targets are to reduce our total GHG emissions from our full value chain by 27% by 2025 and by 67% by 2050, from 2015 levels.

Mars has developed ambitious, science-based GHG reduction targets, which aim to keep us within our share of the global carbon budget. Our targets are informed by the best-available climate science, detailed emissions data, and a set of "carbon principles" (Putt del Pino, 2016).

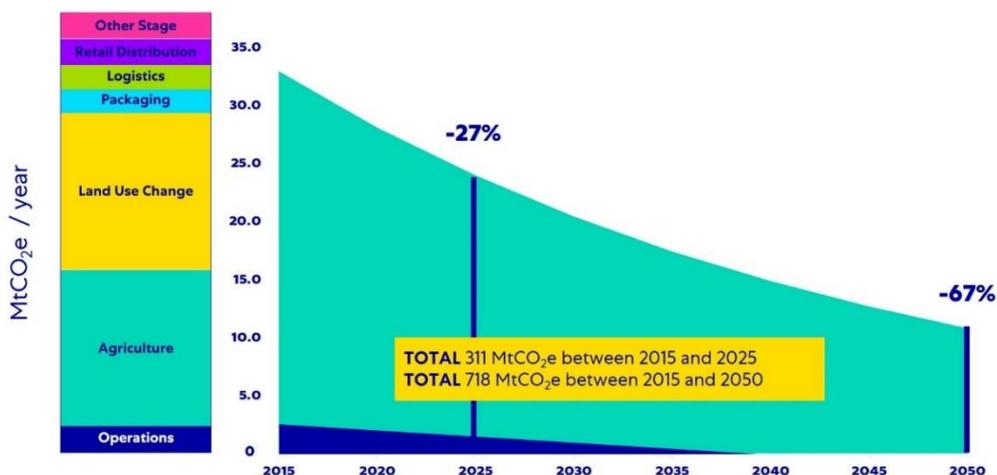
MARS 2015 VALUE CHAIN GREENHOUSE GAS EMISSIONS

Measured in million tonnes carbon dioxide equivalent (MtCO₂e)



We set our climate change targets by working with the [Science Based Target initiative](#), World Resources Institute (WRI) and other partners, to calculate our share of the global carbon budget. If we achieve a 67% reduction by 2050, we will stay within our share of the carbon budget, as illustrated in figure 2 below.

MARS GLIDEPATH FOR GREENHOUSE GAS (GHG) EMISSION REDUCTION TARGETS



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Included within our full value chain emissions targets, we have set a goal to reduce emissions from our operations 42% by 2025 and 100% (net zero) by 2040, in line with what science says is necessary to keep global warming below 1.5°C.

In setting our GHG targets and developing our strategies for meeting those targets, Mars established several key “carbon principles”:

1. Allocation of the global carbon budget should be science-based and aligned with the global 2°C target, which if applied by all emitters would comply with the global budget.
2. Our GHG reduction targets must be absolute, not intensity-based, or we risk hitting our targets but still exceeding our share of the budget.
3. All greenhouse gas emissions count – this includes emissions from [land use change](#). We will not exclude parts of our value chain from our accounting, though we will prioritize where we focus our efforts to deliver reductions.
4. Both reducing net emissions and increasing carbon sequestration can contribute to our goals in a way that is consistent with the science, if done and accounted for correctly.
5. Our strategies for meeting our carbon budget should not restrict the ability of others outside of our value chain to meet GHG reduction targets for their activities.
6. We will use transparent and credible GHG calculation and accounting methods and robust data.

Our theory of change

Climate change has critical implications throughout our value chain. We release carbon dioxide into the atmosphere when we consume energy from fossil fuels – directly in our factories or indirectly to produce the fertilizers used by farmers who supply our raw materials – or contribute to deforestation through expansion of agriculture lands. When those same farmers grow crops to produce our raw materials, the plants sequester carbon, both in the parts we buy and those we don’t. This carbon cycle for agriculture is central to our share of climate impacts and our opportunities to reduce them.

The framework below (Figure 3) applies the carbon cycle and carbon budget concepts to inform our strategies for tackling our emissions. (Note that the actions included in this figure are illustrative examples and not comprehensive). By focusing on actions within our value chain and associated with clear, measurable emissions reductions, we can make significant progress toward our GHG reduction targets. Concurrently, we can explore strategies that sequester carbon within our value chain to help counterbalance emissions we can’t reduce. Emission reduction activities outside our value chain will not be factored into our carbon accounting, as our focus is on reducing emissions related to our business. Our theory of change is that by employing strategies to reduce our direct emissions and sequester carbon within our value chain, while exploring opportunities to invest in carbon sequestration activities outside our value chain, we can stay within our carbon budget.

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ACCOUNTING FRAMEWORK FOR CLIMATE ACTION

	Directly in Mars' value chain	Indirectly in Mars' value chain	Not in Mars' value chain	
Emissions Reductions	Avoiding deforestation Enhancing energy-efficiency Changing materials or sourcing locations improving farming practices	Sourcing renewable electricity through a national grid	Avoiding deforestation Enhancing energy-efficiency Changing materials or sourcing locations improving farming practices	<ul style="list-style-type: none"> actions currently accounted for actions under consideration actions not included in our accounting
Consume carbon budget				
Add to carbon budget				
Sequestration	Promoting afforestation Improving soil management Composting agricultural byproducts	Promoting conservation or restoration on farms that supply Mars and others	Promoting afforestation Improving soil management Composting agricultural byproducts	

Short-term actions

At Mars, we are already taking action to tackle climate change, meet our GHG reduction targets and drive momentum for global climate action. For our direct operations, this approach involves increasing energy efficiency and expanding clean energy by investing in renewables. In our value chain, it involves preventing deforestation and forest degradation related to the raw materials we source, as well as increasing carbon sequestration and reducing GHG emissions through improved agricultural practices. In all of our work, we collaborate with thought leaders and other companies to help improve data and accounting methodologies and pilot strategies to learn about what works.

Operations & Renewable energy

Mars has set a target to reach 100% renewable energy (both electricity and thermal) by 2040. As of 2018, Mars sources more than 50% of our electricity needs from renewable sources.

Switching to renewable and low-carbon energy sources is an increasingly impactful and cost-effective strategy for reducing emissions from our direct operations. Our strategy relies on both on- and off-site renewable energy projects. All off-site and some on-site electricity projects rely on the electrical grid for transmission and to balance energy generation with consumption. As it isn't possible to track electrons through a grid, we use attribute tracking systems established by governments, grid operators or private contracts such as renewable energy certificates (RECs) and other instruments. These systems allow us to build an information bridge between the output of a generating asset and Mars' energy use.

Thermal energy makes up nearly two-thirds of Mars' current energy demand in direct operations, so we consume significant volumes of natural gas at our sites. While a comparatively clean and efficient fuel source, we realize that we can't reach our GHG reduction targets if we are depending on natural gas. With this in mind, we partnered with the

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Renewable Energy Buyers' Alliance and others to launch the [Renewable Thermal Collaborative](#), a coalition for scaling up renewable heating and cooling solutions. We are working on low carbon (such as certain biomass options) and zero carbon (such as solar thermal) energy sources at project and structural levels, to make it easier for all companies to procure and source low-carbon thermal energy.

Mars will also continue to pursue innovative solutions to reduce energy use in our direct operations through energy efficiency solutions. And Mars has set a [Refrigeration Commitment](#) to phase down potent hydrofluorocarbon (HFC) refrigerants.

Land use and deforestation

Mars takes a systems approach to land impact. Building on our deforestation prevention policy, we are working to better measure and reduce the land use impacts in our value chain. Agricultural and land-use change related GHG emissions represent nearly one quarter of global human emissions and 80% of Mars' value chain emissions.¹ By fully integrating agriculture-related land use change into our GHG reduction target, Mars is establishing a quantitative metric for tracking reductions in deforestation. Coupled with our existing work on deforestation and our complementary [target](#) to "freeze" total land use, this represents a significant step forward in our deforestation prevention efforts.

Few companies include land use change in their emissions reporting and GHG targets because of lack of data or standardized accounting methodologies. Working with several external partners on the World Food LCA Database project that provides full life cycle environmental impact data on thousands of raw materials, Mars has estimated our GHG emissions from agriculture and land use change. We are also working with external partners and other companies to refine the method for allocating these emissions to raw materials and drive standardization of these calculations.

We estimate that 80% of Mars' emissions are from our agricultural value chains, which includes approximately 42% from land use change and 38% from agriculture. This impact is primarily concentrated in raw materials sourced from tropical countries – beef, cocoa, palm oil, pulp and paper, and soy account for more than 80% of our estimated land use-related GHGs. This information will help Mars, our suppliers and our peers more effectively target actions to address deforestation and land degradation and stay within our carbon budget.

Sourcing

Mars has three primary options for reducing our emissions related to the raw materials in our value chain:

- **Improve raw material production practices** – most agricultural value chains have untapped efficiency opportunities, whether through yield improvement or more precise application of inputs such as fertilizer.
- **Change where we source** – certain raw materials can be grown in alternative regions

¹ **Operations emissions** result from on-site electricity, fuel and refrigerant use at facilities owned or controlled by Mars; **agricultural emissions** result from practices Mars' suppliers use to produce, process and transport agricultural raw materials, such as fertilizer application, irrigation, and harvesting; and **land use emissions** result from changes in the way land is used, for example clearing forests for agricultural use, or changes in the amount of biomass on the land.

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- with a lower GHG impact.
- **Replace the raw materials we source** – for some existing and new products, we have options including substituting lower-emission ingredients or designing new products that use lower impact materials.

As we implement our raw material specific strategies, we will deploy combinations of the above strategies. In all cases this involves working closely with our suppliers and the farmers in our value chains to develop mutually-beneficial solutions.

Sequestration

The ability of trees, other plants, and the soil to sequester carbon from the atmosphere creates two opportunities to help Mars stay within our carbon budget: sequestering carbon in our value chain, and investing in sequestration activities outside of our value chain (see figure 3).

In the first category, Mars is working to source raw materials from agricultural systems that capture carbon for a longer time period or can be changed to do so. Composting agricultural wastes to be used as soil enrichment or deploying soil conservation practices on productive lands are two examples; another is to support activities that create and store biomass on degraded lands. This approach can have additional benefits such as soil erosion control, water storage and community development, for example by providing new sources of income through sustainable forest products or payments for ecosystem services. The practices that farmers employ in their fields can also provide yield benefits. In the same field, one farmer could grow crops to sell to Mars, compost wastes from the crops we buy, and plant forest on a vacant part of her land. Mars also invests in the [Livelihoods Fund for Family Farmers](#), which includes initiatives to help small-scale farmers improve on-farm practices to improve farmer incomes and increase carbon sequestration. From a carbon budget and accounting point of view, there is no limit to the amount of sequestration we can aim for – it is even possible for a crop to have negative emissions. We are exploring this opportunity across our raw materials – particularly in tree crops such as cocoa.

We are exploring options for the second category of sequestration – projects outside our value chain. We realize we need to be judicious about relying on negative emissions approaches because of the costs and new supplier relationships needed, the potential distraction from reducing emissions in our own value chain, and the land resources they may require.

Data & Reporting

Since 2009, Mars has published a GHG emissions inventory annually through [CDP](#). We use the [Greenhouse Gas Protocol](#) to calculate and report our emissions in each source category, with the best available data. For categories with a larger share of our total emissions, we have invested additional effort in securing better and more granular data to improve accuracy. We use public data sources, such as the U.S. Environmental Protection Agency's [eGRID](#), the U.K. Department of Environment, Food and Rural Affairs database, and [ecoinvent](#), to supply the impact factors used in our calculations when available, and we apply them consistent with publicly available methods. We will continue to invest in the collective development of better methods and data availability and work with our suppliers to apply a better understanding of

their emissions to drive reductions.

What's Next

Mars will continue to refine and expand our approach to measuring and reducing our GHG emissions, including addressing land use related emissions such as deforestation. We will work with thought leaders to improve data and methodologies and apply the best available science to our strategies. We are committed to transparency, and will work to strengthen our emissions calculations and reporting. Applying our principle, “all GHG emissions count,” we will strive for a complete picture of our emissions, by exploring emerging areas such as soil carbon dynamics, carbon pricing, and indirect land-use change emissions accounting. We will continue to develop our approach to carbon sequestration activities both inside and outside our value chain. Finally, while our GHG reduction targets aim to reduce our emissions consistent with helping to prevent the worst climate change impacts, we recognize that climate change is already occurring. Adapting to and improving resilience against climate change is also critical for the long-term sustainability of our business, and we will continue to assess and respond to the related impacts in our value chain.

Citations

NASA (2019). NASA, Vital Signs, Global Temperature. Retrieved from NASA Web site: <https://climate.nasa.gov/vital-signs/global-temperature/>

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World Resources Institute (WRI), CAIT Climate Data Explorer (2019). Historical Emissions Dataset. Retrieved from World Resources Institute Web site: <http://cait.wri.org/historical>.