
Image: Getty Images

Customer | **R&D** | Procurement | Production | Sales | Services

# $CO_2$: Emission and emotion

Environmentally friendly vehicles have become the subject of a heated public debate. Issues like global warming, fine-particulate matter, gas-guzzling SUVs and a lack of diesel particle filters have created the impression that the automotive industry is dawdling in its efforts to reduce $CO_2$ and emissions.

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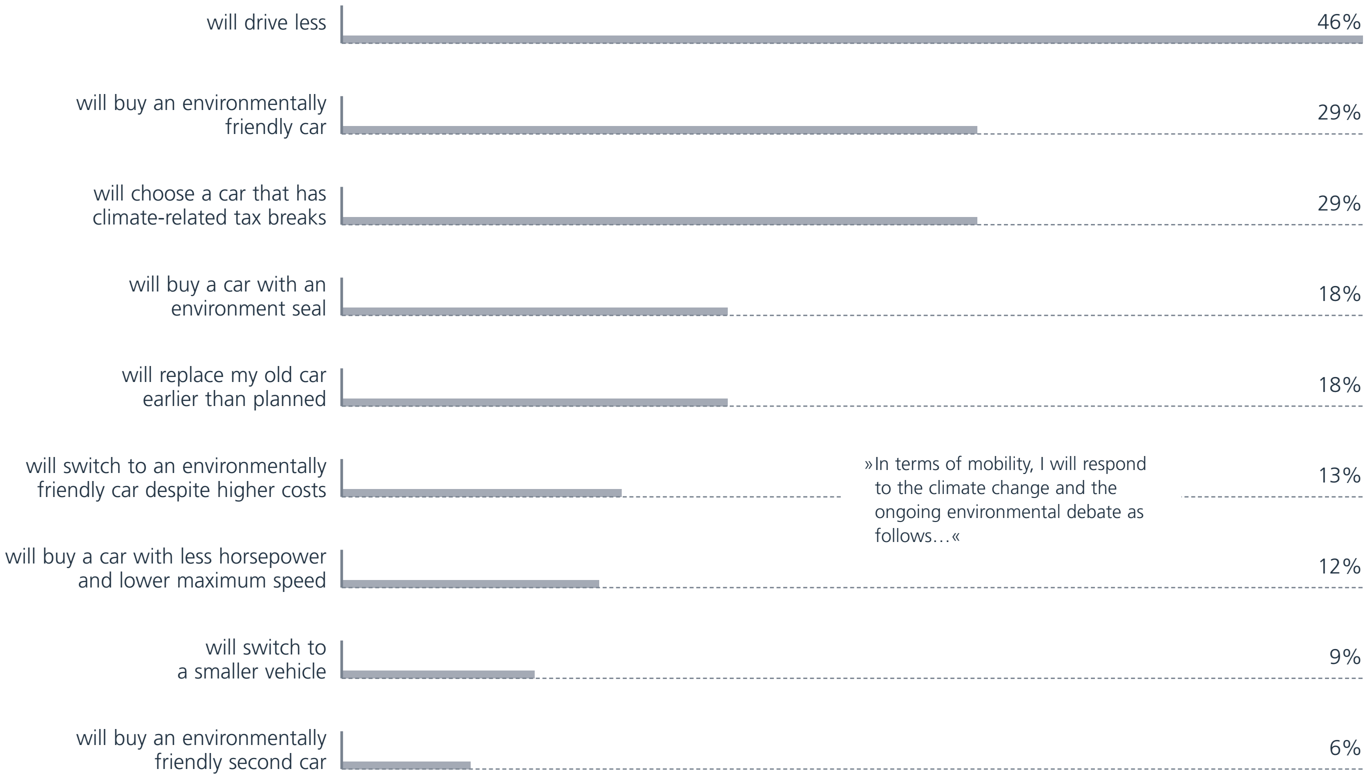
From an objective perspective, less than 10 percent of all greenhouse gases are attributed to the 800 million vehicles worldwide. In recent years, new technologies have helped reduce emission thresholds for nitrogen oxide, hydrocarbons, carbon monoxide and particle mass by more than 80 percent. Sulfur, lead and benzene have been banned entirely from fuels. Since 1990, Germany's absolute level of $CO_2$ emissions has remained stable despite increasing traffic volume. In relation to transport capacity, it was even reduced by 40 percent. As much as 30 percent of R&D expenditures, or USD 27 billion a year, are already invested in the development of more efficient and cleaner drive systems and vehicles worldwide. Nonetheless, the automotive industry has been unable to enhance its environmental image.

### Showcasing green products

Today, green products are on display everywhere – in the media, at trade fairs and on concept vehicles. Automotive manufacturers have launched long-term initiatives to reduce fuel consumption and emissions. They are working on several fronts at the same time, e.g. improving the efficiency of traditional and development of alternative drive concepts, and refining fuel management, lightweight construction, exhaust treatment and alternative fuels. According to estimates by Oliver Wyman, the required R&D budgets will amount to USD 328 billion over the next 10 years. As a result, the cost of manufacturing a mid-sized car that is optimized in terms of $CO_2$ emissions and fuel consumption will increase by nearly USD 960 billion by 2015. These investments will pay off for

## Little willingness to pay for environmentally friendly technologies
Car customers' reaction to climate change – EU[1]




[1] Germany, France, Italy, Poland, Spain, UK
Source: Oliver Wyman study: Car & Environment 2007 – Customer expectations as an opportunity for carmakers
Multiple responses possible



the environment: The vehicles will emit up to 30 percent less $CO_2$ as a result.

### The future eco stars

The eco image of German brands is rather humdrum at the moment. But drivers regard these brands as future stars. European premium customers believe that Mercedes-Benz will be the most environmentally friendly car brand in 10 years. Volkswagen, which ranks fifth among the mass-market brands today, is expected to move up to third place. And German drivers believe that VW could even climb to No. 1. However, customers will regard environmental sustainability as a hygiene factor in their choice of car and will not be prepared to pay significantly more for it. Only 13 percent of EU drivers want to spend more money on an environmentally friendly car. Fourty-six percent would reduce their driving performance, and 29 percent would choose a vehicle that comes with ecologically motivated tax subsidies.

### Image trap $CO_2$?

Most automotive manufacturers have reacted slowly, but not too slowly to the $CO_2$ debate. Many now want to cover the whole spectrum of technological solutions with their vehicle program. Although they cannot avoid a number of topics for legal and competitive reasons, they still face a difficult choice. If they hold back, the automakers could miss the next great wave that follows hybrid drive systems. But if they invest too broadly, they could bypass customer needs in their development work. And given the many initiatives, limited know-how and capacities introducing eco-friendly technologies before they are ready could lead to possibly fatal follow-up costs and image damage for a brand. Technical and economic risks, however, are hardly discussed. This is why $CO_2$ reduction efforts must be embraced as a cross-functional, strategic project and firmly rooted in organizational structures, processes and top-level management.

## Automotive manufacturers' $CO_2$ agenda:

**Drivetrain and technology strategy:** Manufacturers must define a drivetrain and technology strategy that fulfills customer requirements and helps distinguish the brand, but can still be handled by R&D and production. $CO_2$ programs must be focused and prioritized accordingly.

**Business case:** What is technically feasible must also be tested for its cost effectiveness by weighing quantified risks and opportunities. The key focus is on costs and benefits to identify a prioritized and balanced portfolio of measures. Strategic and operative program controlling must guarantee profitable implementation.

**Risk management:** The value and risk exposure of individual $CO_2$ strategy paths must be categorized and quantified in connection with alternative market scenarios. Operative risk management should anticipate and uncover technical and financial risks early on so budgets and resources can be reallocated when necessary. Active risk management thus becomes the linchpin of the $CO_2$ discussion.

**R&D organization:** Distributed activities must be bundled and organizational structures related to traditional and alternative drivetrain concepts must be adapted. At the same time, capacities and skills must be geared towards new $CO_2$ topics and developed in a targeted manner.

**Value creation and network strategy:** Automotive manufacturers should engage in the development and production of differentiating, or value-adding, core components as well as create system and integration competence. A network strategy with suppliers and engineering service providers designed to fulfill these tasks guarantees access to key technologies.

**Communications strategy:** The various internal and external interest groups must be addressed and integrated into the process in a targeted manner. Communications must address customer expectations, strengthen the car brand, and win over investors, politicians, dealers and employees. As a result, communication becomes a company-wide task that unites technology, finance and sales.

### Brand perception and environmental sustainability – EU[1]
By segment

Eco image

**Premium customers**

| | Today | | In 10 years |
|---|---|---|---|
| 1 | Toyota | 1 | Mercedes-Benz |
| 2 | Mercedes-Benz | 2 | BMW |
| 3 | Audi | 3 | Toyota |
| 4 | BMW | 4 | Audi |
| 5 | VW | 5 | VW |

»Which 3 car brands would you rate as particularly environmentally friendly/ecologically responsible today?« (unaided, up to 3 responses)

»Which 3 car brands do you expect to be environmental leaders 10 years from now?« (unaided, up to 3 responses)

Stays in top 10
New entry

**Volume customers**

| | Today | | In 10 years |
|---|---|---|---|
| 1 | Toyota | 1 | Toyota |
| 2 | Renault | 2 | Renault |
| 3 | Peugeot | 3 | VW |
| 4 | Opel[2] | 4 | BMW[3] |
| 5 | VW | 5 | Peugeot |

[1] Germany, France, Italy, Poland, Spain, UK [2] UK: Vauxhall [3] Today on 11th position