open your mind.

>> Environmental brochure.

smart fortwo electric drive.

>> Contents.

>> „Daimler AG's aim is to ensure sustainable individual mobility."

Interview.

Prof. Dr. Herbert Kohler,
Chief Environmental Officer, Daimler AG

Prof. Kohler, the smart fortwo electric drive is a milestone in vehicle development at Daimler. As Chief Environmental Officer, what do you feel sets this vehicle apart?

Prof. Kohler: In view of the limited resources and ambitious climate protection targets, we as carmakers are naturally exploring the technologies we can use to meet these challenges. On the one hand, this involves further improving combustion engines and hybridization. On the other, we are looking to additional alternatives such as battery electric vehicles. This kind of drive is suitable above all for getting around in cities, where driving noises and emissions are a particular point of focus owing to the high level of traffic. An electric vehicle such as the smart fortwo electric drive produces no emissions and thus improves the quality of city life. Because it is virtually noiseless. And even leaving all that aside – the new electric smart offers excellent acceleration and is great fun to drive.

All things considered, electric vehicles only reduce greenhouse gases on a sustained basis when the charging current comes from additional, renewable sources of energy. How do you see this?

Prof. Kohler: Quite right. Because of this, we are also putting our weight very much behind efforts by politicians to make available the power for electric mobility from additional, renewable energy sources. Of course, this should now be followed up by actions as well. In our model project, we show that carbon-neutral driving is possible. Without seeking funding under the German Renewable Energy Sources Act (EEG), we will feed enough wind-generated electricity into the German national grid to power all vehicles of the new generation of the electric smart sold in Germany. However, it is also clear that such projects require us to make a certain investment in order to set the ball rolling for all those involved – particularly political and energy sector representatives.

How do you cope with the rising demand for special raw materials such as rare earths that are needed for electric mobility?

Prof. Kohler: In order to ensure that we have all the resources we need for vehicle production, we are focusing much of our attention on material efficiency, substitution and recycling. Even though rare earths are far more common than their name suggests, we are working on technical concepts and alternatives for which fewer or none of these raw materials are required. There is also significant future potential in recycling rare earths from vehicles and components at the end of their lifecycles.

For decades, cars have been sold based on performance and emotional factors such as sportiness and status. How will this change with electric cars?

Prof. Kohler: Our electric city runabout promises performance and sportiness, too. But without any local emission. The smart fortwo electric drive can go from 0 to 60 km/h in 4.8 seconds. Thanks to its advanced drive technology, it now even tops 120 km/h, meaning that it is fun to drive on motorways, too. This shows that electric vehicles with batteries are not only a practical alternative for zero-emission mobility in cities, but also a very attractive one. The smart fortwo electric drive combines fun behind the wheel with a range of 145 km – which is more than enough for a day's driving in the city. And why shouldn't an electric car be a status symbol as well? People who already have electric cars are regarded as interesting, innovative trendsetters and pioneers in sustainable mobility.

If you look at the eco-balance of an electric vehicle, you will see that electric cars are not really that much more environmentally friendly than conventional cars at the moment. How would you respond to this argument?

Prof. Kohler: There is no doubt that electric mobility offers many opportunities. Compared with the combustion engine, which has been continually developed and enhanced for over 125 years, it is still in its infancy. In other words, there is still enormous potential to be tapped. There will be further significant technological developments that will have a positive influence on both the cost and the eco-balance of these vehicles. One of the many examples is the battery, which determines the eco-balance of the manufacturing stage to a great extent. With the use of battery technologies currently being developed it is possible to reduce greenhouse gas emissions by almost 40 percent when manufacturing batteries.

The eco-balance of an electric car has just been validated for the first time by German technical inspection authority TÜV Süd. Does this mean that the combustion engine's days are numbered?

Prof. Kohler: No, certainly not in the short or medium term. To begin with, electric cars will primarily supplement existing concepts. Our aim is to ensure sustainable individual mobility. We are consciously taking a "multi-track" approach: efficient vehicles with optimised combustion engines will continue to play a key role in the foreseeable future. We will also be focusing our attention on hybridizing vehicle drives and on local zero-emission driving with battery or fuel cell drives. We firmly believe that there will be more than one drive technology to be found on the streets of the future.

>> The smart fortwo electric drive.

Local zero-emission driving pleasure for everyone.

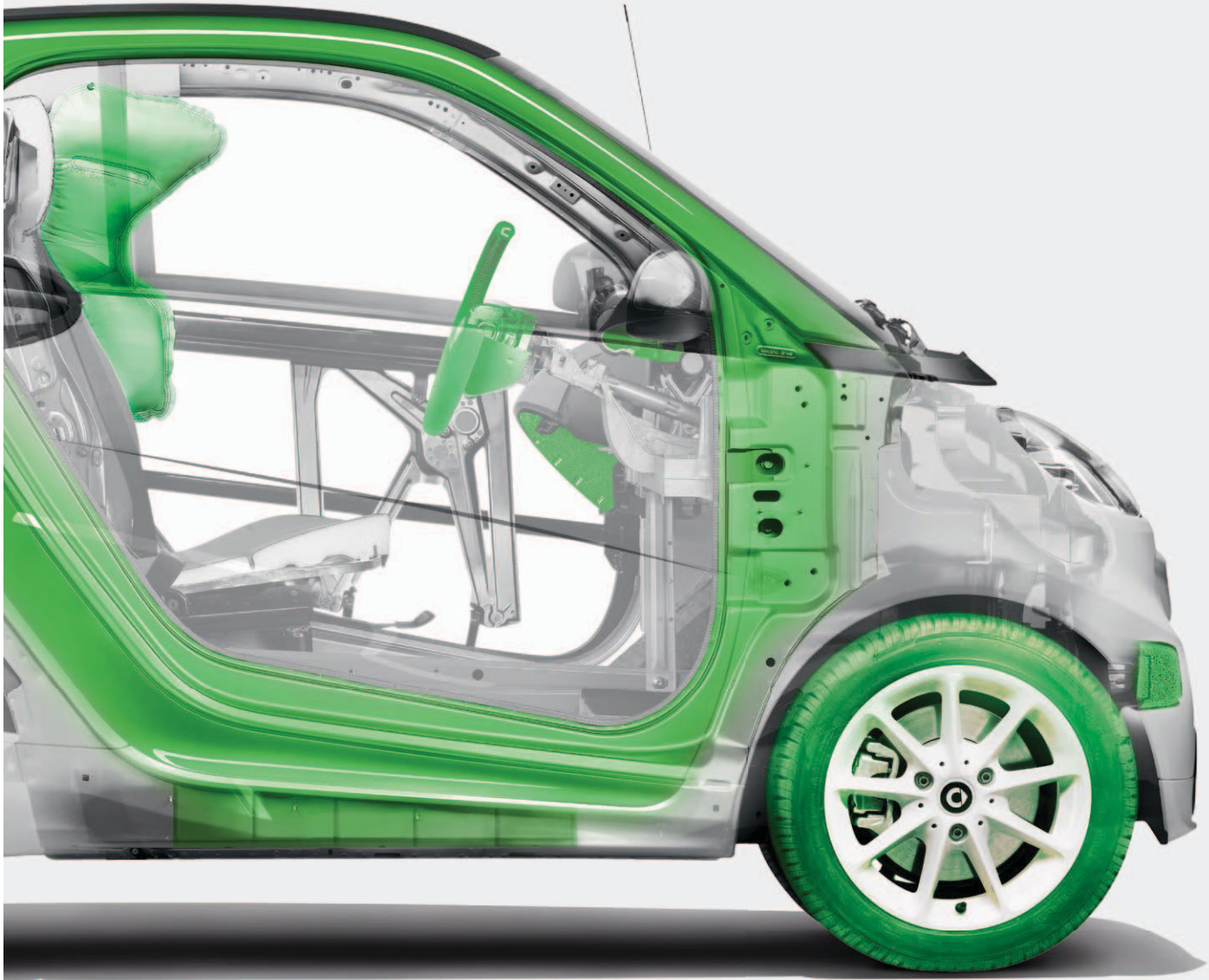
Ever since 1998, the smart has been revolutionising urban mobility like no other vehicle before it. Compact, agile, environmentally friendly and stylish – it has evolved from a practical small car to a lifestyle product and has long since become a familiar sight on the roads of cities around the world. Today, the smart fortwo electric drive is a trendsetter and a byword for forward-looking battery-electric-driven urban mobility.

Since 2009, more than 2,000 vehicles of the second generation of the smart fortwo electric drive have been produced in Hambach. Since then smart has had one of the largest fleets of electrically driven vehicles on the roads worldwide and has extensive customer experience and wishes to draw on. All of this has been channelled into the development of the new smart fortwo electric drive.

Even better in the new generation

The new enhanced smart fortwo electric drive is equipped with an agile and lively 55 kW magneto-electric motor – the first product of the EM-motive joint venture with Bosch. With torque of 130 Newton metres, it accelerates powerfully and immediately from 0 to 60 km/h in 4. 8 seconds. Its improved acceleration in the higher speed range means that it can sprint from 0 to 100 km/h in 11. 5 seconds with much more tractive power than its predecessor. With a top speed of 125 km/h, the battery-driven two-seater is an equal match for its combustion engine counterpart.

A battery supplied by Deutsche ACCUmotive is fitted in the new smart fortwo electric drive for the first time. With a capacity of 17. 6 kWh, the lithium-ion battery from the joint venture with Evonik Industries provides for 145 kilometres of clean driving fun – with no local emissions whatsoever. In addition to the higher battery capacity, clear improvements have been made to the efficiency of the drive system, resulting in a greater range. When completely empty it takes a maximum of seven hours to fully charge the battery at a household socket or charging station on the electricity systems of most countries. With the optional 22 kW on-board charger, the vehicle can be charged and ready to go in less than an hour.



Safety: all-round passive safety

The smart fortwo electric drive provides maximum safety in minimum space. A sophisticated safety concept with extensive safety equipment and many different safety elements protects passengers in emergency situations.

At the heart of the smart's passive safety concept is the tridion safety cell. This offers maximum stability in an ultra-compact design, and provides protection by keeping deformation of the passenger compartment to an absolute minimum. Thanks to the short wheelbase, the other vehicle involved in a side-on crash will almost always hit the wheel and the suspension components behind it. Steel deformation elements at the front and rear – known as "crash boxes" – absorb the energy from minor collisions at low speeds, and ensure that the tridion safety cell itself remains undamaged.

Full-size airbags provide optimal protection for both driver and passenger if the worst comes to the worst – and can be supplemented with optional head/thorax side airbags if desired. The sheet steel structure of the seats with integrated headrests lends them a high level of mechanical stability.

Avoiding dangerous situations before they arise

It's always good news when an accident doesn't do any damage. But it's even better if the accident can be prevented in the first place. The active safety systems that come as standard with the smart fortwo electric drive help to prevent dangerous situations from the outset. For instance, esp® and abs help the driver to stay in control of the vehicle even in critical driving situations.

The electronic stability programme esp® senses when the vehicle is in danger of swerving and reacts instantly by reducing the engine torque and braking in precisely metered impulses. As part of the electronic stability programme esp®, the anti-lock braking system (abs) ensures that the wheels do not block during emergency braking and that the smart fortwo electric drive remains steerable even in critical situations. The hydraulic brake assist automatically initiates controlled emergency braking when the driver applies the brakes quickly, but not firmly enough, in dangerous situations. This ensures that the smart fortwo electric drive will come to a safe stop as quickly as possible.

Always know how far you can go: connected services

If the smart fortwo electric drive is connected to the internet – for example with a standard powerline adapter (Homeplug AV) – you can make use of the SmartCharging function. After entering the planned departure time in the vehicle or the web portal the vehicle will be fully charged in a battery-saving and economical way – and pre-air conditioned if required – so that it is ready to start.

The current state-of-charge or the SmartCharging charge configuration can be conveniently controlled and managed via a web portal from a home computer or with an iPhone or any modern smartphone. The Vehicle Homepage offers every customer with a new smart fortwo electric drive a chance to visualise the range on an interactive map with 3D views. The display shows all the destinations and charging stations that can be reached with the current battery charge. The new smart fortwo electric drive makes charging at public stations child's play. With Plug&Charge, the vehicle is identified as soon as it is plugged into a compatible charging point and the charging process is settled automatically.

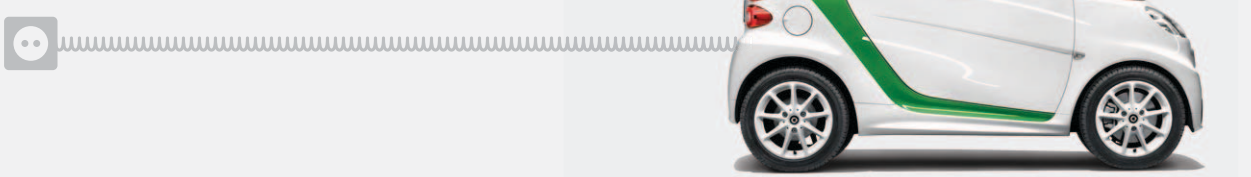
Opting into electric mobility made easy

smart's new sales concept gives customers a warm welcome to the world of electric mobility. With the sale&care model, smart customers can buy, lease or finance the vehicle at an attractive price and rent the battery for less than €65 a month (incl. VAT). This means that the monthly costs for electric driving are no higher than for a comparable diesel vehicle. The rental costs include regular maintenance and, if necessary, quick battery replacement. smart also has a solution for customers who wish to buy the entire vehicle.

>> Technical data.

smart fortwo electric drive

Motor (type)	Electric motor (magneto-electric motor) – EM-motive
Continuous output in kW	35
Max. power in kW	55
Max. torque in Nm	130
Acceleration 0-60 km/h in s	4.8
Acceleration 0-100 km/h in s	11.5
Maximum speed in km/h	125
Range in km	145
Battery capacity in kWh	17.6
Battery type	Lithium-ion battery – Deutsche ACCUmotive
Charging time (230 V) without wallbox in h	7
Charging time (230 V) with wallbox in h	6
Charging time rapid charging (400 V/22 kW) with wallbox in h	1



>> Environmentally responsible production.

The environmental compatibility of a vehicle is determined by its emissions and by the resources it consumes throughout its entire lifecycle. To ascertain the "design for environment" of the new electric smart, all environmental impact factors were analysed and optimised in the product design and development stage by means of eco-balance studies in accordance with ISO 14040/444 – from material and component production to vehicle usage and recycling. The findings of the environmental assessment were checked and confirmed by independent experts at the German technical inspection authority TÜV Süd.

Production of the smart fortwo electric drive in Hambach

The smart fortwo electric drive is produced in Hambach, France. The production site fulfils the highest environmental standards in the automotive industry and has had a certified environmental management system in place in accordance with ISO 14000 and EMAS since production began in 1998. The plant has always been synonymous with innovative production. The assembly line is shaped like a "plus" symbol to enable it to meet assembly and logistics requirements optimally, thus ensuring highly efficient production processes. This principle enables system partners and suppliers to deliver modules right to the assembly line. In this way, transport and logistics are reduced to a minimum – an advantage not least in ecological terms. The new electric smart is also integrated directly into this production process. This means that, for the very first time, we are able to manufacture electric-drive and combustion-engine models continuously in a perfectly integrated production environment. This in turn makes it possible to optimise the potential of the smart vehicle concept that was designed for different drive types right from the start. The design of the vehicles and the state-of-the-art energy concept also ensure that the smart brand's ecological product responsibility is translated into the production.

Components of renewable raw materials and recycled materials in the smart fortwo electric drive

Renewable raw materials and recycled materials in the smart fortwo electric drive

The new smart fortwo electric drive uses primarily materials that consume a minimum of resources and have low energy requirements and a high recycling capacity. The new electric smart contains 32 components with a total weight of 37.3 kg manufactured from "green" materials. Of these, 21 components (24 kg in total) have been approved for the use of recycled plastics. Eleven further parts (13.3 kg) consist partly or entirely of renewable raw materials. Recycled plastics are used in the wheel arch lining and underbody panelling.

A special feature of the electric smart is that recycled plastics are used in a closed cycle to produce panelling parts (rear wings, driver door, passenger door and rear end panelling). Vehicle parts from the smart fortwo electric drive that are accumulated during disassembly in workshops are collected, reconditioned and made into new panelling parts.

As regards sustainable materials, there are three major areas to which the smart applications can also be allocated:

› Natural products such as cotton are used in the vehicle interior, while floor coverings and side trim panelling contains cotton-blend textiles.

› In some cases, natural fibres are used instead of mineral fibres as reinforcing components in the production of panelling parts. The lower part of the smart instrument panel is made of natural-fibre reinforced plastics.

› Renewable raw materials have excellent insulation properties that help to keep noise to a minimum. In this function, cotton fibre fleece in the smart is used to insulate the passenger cell.

>> Usage stage.

The German government aims to ensure a climate-friendly, sustainable and safe supply of energy for Germany. By the year 2020, the aim is that renewable energies should account for at least 35 percent of the entire gross electricity consumption and the proportion should continue to increase after that. Electric mobility plays a key role in achieving traffic-related CO_2 targets and is instrumental in meeting European and German climate protection targets. Electric mobility allows CO_2 emissions to be reduced significantly above all when regenerative electricity is used to power the vehicles.

Electric smart powered by wind energy throughout Germany

Zero-emission motoring is now a reality in Germany with the new smart fortwo electric drive. A new wind turbine, bought by Daimler, will provide the additional electricity needed to power all the vehicles sold in Germany. Located near Hof on the A9 motorway, the wind energy plant produces almost 4 GWh of additional renewable energy (with a nominal output of 2.3 MW) which is fed into the German national grid every year. By using green electricity, smart customers can be sure of completely carbon-neutral motoring.

No need for EEG funding

In accordance with the German Renewable Energy Sources Act (EEG), producers of renewable energies are entitled to support measures (feed-in tariffs) with the additional costs to be spread over all electricity customers in Germany. Following stakeholder talks with environmental associations, it became clear that it was only possible to meet the requirements for the additional renewable electricity needed for electric mobility by producing regenerative electricity without EEG support measures. In this connection, Daimler AG is deliberately forgoing support measures from the EEG.

With this model project – which is outside its core business area – the company is sending a clear signal that carbon-neutral mobility is possible with electric cars. By investing in renewable energies in Germany, we want to show that it is possible for our electric smart not just to be CO_2-free when on the road, but also at all stages from the power source to the vehicle ("well-to-wheel"). However, in order for electric mobility to be sustainable in the long term, 100 percent of electricity required must come from additional regenerative energy sources.

>> smart fortwo electric drive recycling concept.

The recycling concept for the new smart fortwo electric drive was developed at the same time as the vehicle itself in that the individual components and materials were analysed for each stage of the process. The calculation model reflects the real process for recycling end-of-life vehicles and can be broken down into four stages:

1. Pre-treatment (removing all service fluids, tyres, battery and catalytic converters and igniting the airbags).
2. Disassembly (removing spare parts and/or components in order to recycle materials).
3. Separation of metals in the shredding process.
4. Treatment of non-metal residual fraction (shredder light fraction – SLF).

The recycling/reusage quota for the overall vehicle is determined based on the material flows specified for the individual steps. According to the ISO 22628 calculation model, 85 percent of the material from the smart fortwo electric drive is recyclable and 95 percent is reusable in this process chain.


Vehicle mass
SLF processing
› Recycling
› Energy recovery
Pre-treatment
› Fluids
› Battery
› Tyres
› Airbags
› Catalytic converter
› Oil filter
Metal separation
› Remaining metal
Disassembly
› Prescribed parts
› Parts for reuse and recycling

In order to implement the recycling process chain and to safeguard future raw material requirements for electric mobility, Daimler AG is actively involved in researching and developing new recycling technologies.

Findings relating to the recycling of lithium ion batteries were collected in "LiBRi" (Lithium Ion Battery Recycling Initiative) in cooperation with suppliers and recycling partners. Here, innovative recycling concepts were developed which enable high-quality recycling of valuable components and raw materials. The company has defined four stages for the recycling process and developed new processes accordingly:

- **ReUse**
  Reusing batteries. Here, reconditioning work is limited to cleaning and replacing parts with a limited service life, e.g. fuses.
- **RePair**
  This more in-depth repair stage includes work on the battery. Here, individual modules within the battery system can be replaced.
- **ReManufacturing**
  This process includes disassembling the battery down to individual cell level. After sorting, testing and replacing components, the battery system can be put together again.
- **ReMat**
  This process involves recycling materials and recovering valuable raw materials.

Daimler AG has already set up a central recycling centre at its Mannheim site for the purpose of product recycling of high-voltage batteries.

The electric motor is also a key component of electric vehicles. The company is researching innovative ideas for recycling electric motors as part of the "MORE" project (Motor Recycling). In order to develop recycling solutions for electric motors, a consortium from industry and research looks at the entire value chain – from designing and producing motors to returning and reusing motors in vehicles.

With the "MORE" project, researchers are exploring a number of different approaches for recycling electric motors:

› Removing the magnets weighing around 1 kg from old motors.
› Repairing and subsequently reusing the electric motor or its components.
› Recycling raw materials found in magnets, which for the most part consist of rare earth metals.

The project team includes experts from Siemens, Daimler, Umicore and Vacuumschmelze, Erlangen University, Clausthal University of Technology, the Institute for Applied Ecology (Darmstadt) and the Fraunhofer Institute for Systems and Innovation Research. The technologies developed can also be used in future for applications in other areas in which rare earths play a key role, for instance wind power.

>> Eco-balance: electric drive vs. gasoline engine.

The smart fortwo electric drive.

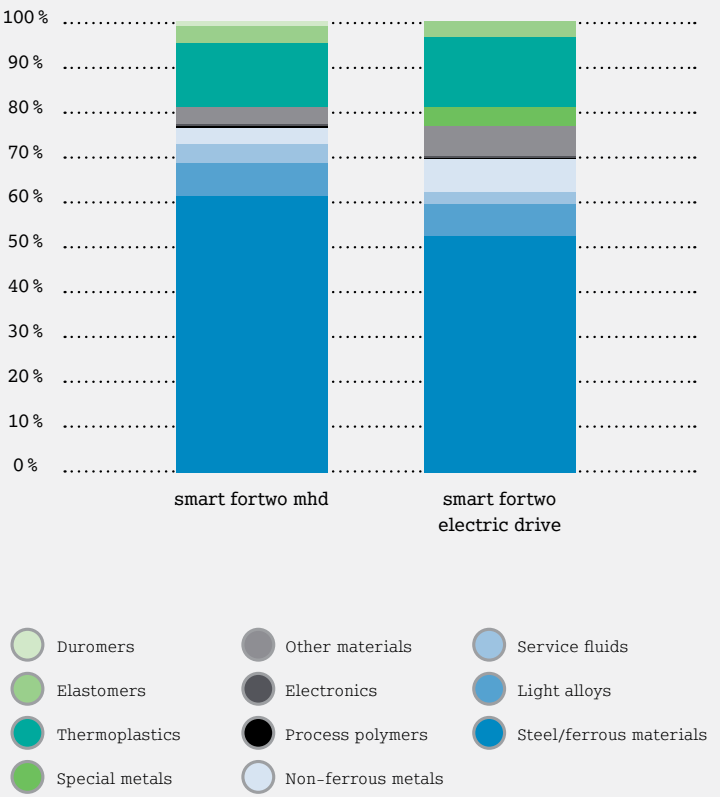
As the first series-produced electric car, the smart fortwo electric drive was compared with a conventional combustion engine vehicle – the smart fortwo micro-hybrid drive – in an extensive eco-balance study. Following an in-depth external review, German technical inspection authority TÜV Süd confirmed that the standard requirements of DIN EN ISO 14040/14044 had been complied with and also verified the modelling of the product system and the relevant manufacturing processes, including quality assurance measures.

Material balance

Through the alternative drive components, the mix of materials used in the smart fortwo electric drive changes substantially compared with the smart mhd. Just over half of the weight of the vehicle (52 percent) is accounted for by steel/ferrous materials, followed by polymers (around 19 percent) and light alloys (7 percent). The proportion of non-ferrous metals and other materials – e.g. glass and graphite – are around 6 percent each, while service fluids account for 3 percent. The remaining materials – process polymers, electronics and special metals – make up some 5 percent of the vehicle's weight. The special metals are determined by the high-voltage battery materials. The process polymer material class relates above all to painting materials.

The main components of the electric drive are the electric motor, power electronics, the battery charger and the lithium ion battery. This gives rise to differences in the material fractions as against the comparable gasoline-driven vehicle. For instance, the proportion of light alloys increases by 15 percent, while the share of non-ferrous metals and other materials roughly doubles.

Comparison of materials mix



Greenhouse effect

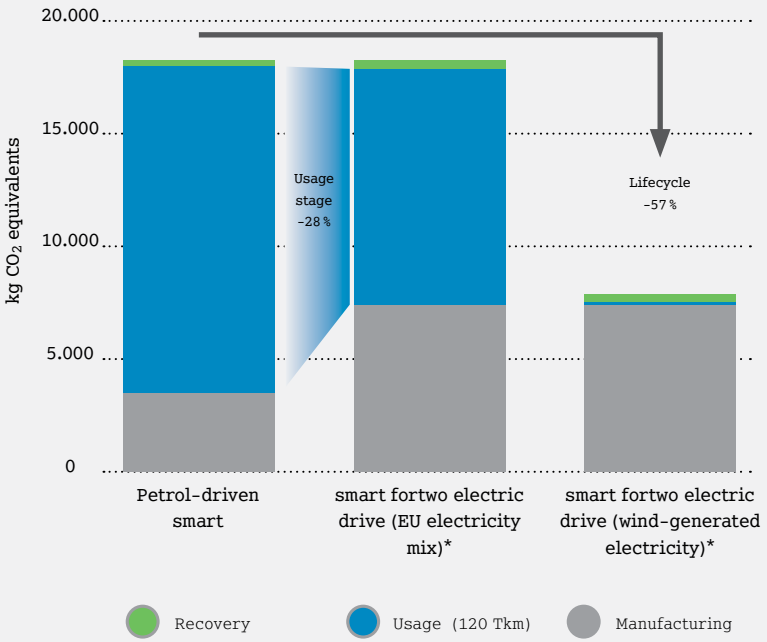
The change in the material mix of the new smart fortwo electric drive also alters the environmental impact of the vehicle production process. From the resource extraction stage to production at the Hambach plant, the smart fortwo electric drive currently generates around 7.4 t of CO_2 equivalent per vehicle, compared with 3.6 t of CO_2 equivalent for the smart mhd. However, the greenhouse gas emissions caused in the manufacture of electric vehicles will be reduced substantially in the future through improvements in vehicle and materials technology.

But the most important feature distinguishing it from models with combustion engines is that the new electric smart does not produce any emissions at all when driving. Emissions associated with producing fuels and generating energy must also be taken into account.

Two scenarios have been taken into consideration for the electric vehicle here – operating the electric smart with wind-generated electricity and using the EU electricity mix. In the usage stage, when driven over 120,000 km, the greenhouse gas potential based on the European electricity mix amounts to 10.4 t of CO_2 equivalent. By contrast, the gasoline-driven smart produces 14.4 t of CO_2 equivalent. When the overall usage stage is taken into account, the smart fortwo electric drive is found to release 28 percent less greenhouse gas emissions than its gasoline-driven counterpart. Viewed over the entire life cycle, the contribution to the greenhouse effect made by the smart fortwo electric drive with renewably generated electricity is almost 60 percent less than with comparable gasoline-driven vehicles.

The eco-balance illustrates the importance of renewably generated electricity for electric mobility.

Greenhouse gas emissions



* during the usage phase

>> Conclusion.

The smart fortwo electric drive is a car that combines dynamics and driving comfort to offer a very special driving experience as well as leading the pack when it comes to respect for the environment. To verify its outstanding environmental credentials, the smart fortwo electric drive was examined for the first time in a comprehensive eco-balance study and was subjected to a critical review by the German technical inspection authority TÜV Süd.

This environmental brochure outlines the results of the environmentally friendly product development: from material and component production to vehicle usage and recycling. The smart fortwo electric drive has turned electric mobility into reality. A sophisticated, fully developed technology combined with the smart fortwo's unlimited suitability for everyday use – lots of good clean fun behind the wheel with no CO_2 emissions whatsoever whilst driving. With an electricity consumption of 15.1 kWh per hundred kilometres* and zero CO_2 emissions, the smart fortwo electric drive belongs in the A+ efficiency class. Using regenerative green electricity, the smart fortwo electric drive also produces almost 60 percent less greenhouse gases over its lifecycle than comparable petrol-driven vehicles. Individual mobility has never been as carefree as this.

* In accordance with the new European driving cycle (NEDC)

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

MS01-07/10

Management Service

Validation

TÜV SÜD Management Service GmbH has verified
and hereby validates
the product life cycle assessment plus statements for the vehicle type

smart fortwo electric drive

Model Year 2012
(compared to smart fortwo mhd (petrol-driven) and smart fortwo cdi (diesel-driven)

made by

Daimler AG
Research & Mercedes Car Group Development
Béla-Barényi-Straße 1
D - 71059 Sindelfingen

Verification criteria:

- **EN ISO 14040:2006 / EN ISO 14044:2006** for the statements of the life-cycle assessment in accordance
- with the final report of **25 May 2012** (principles and framework, definition of goal and scope, inventory analysis, impact assessment, interpretation, critical review)
- **Requirements of the TÜV SÜD MS standard "Model and data quality of inventory analysis and impact assessment as elements of life-cycle assessment in accordance with EN ISO 14040:2006 / EN ISO 14044:2006"**

Scope:

- **Third-party critical review of life-cycle assessment for conformity with the EN ISO 14040/14044 standards**
- **Verification of the approaches to model the product system and the relevant manufacturing processes including quality-assurance measures**
- **Verification of product and process-related input data and environmental information based on random sampling**

Test results in detail:

1. **Critical review result:**
   The preparation of the life-cycle assessment is in conformity with ISO 14040 and ISO 14044. The methods used and the detailed model of the product system are of adequate good quality. They are suitable to fulfil the goals stated in the study. The report is comprehensive and provides a transparent description of the framework of the life-cycle assessment.
2. **Conformity with the criteria of the TÜV SÜD MS standard:**
   The reviewed samples of data and information used as input for the model and life-cycle assessment of the product system and the relevant manufacturing processes were found to be in conformity with the standard. The party preparing the life-cycle assessment (LCA owner) takes systematic and appropriate quality assurance measures.

TÜV SÜD Management Service GmbH

Munich, 25 May 2012

Michael Brunk
Environmental Verifier

Dipl.-Ing. Ulrich Wegner
Head of Certification Body

Note:
The validation applies to the final report of the life-cycle assessment referred to above. Should new facts become known which impact on the data, the modelling and the parameters examined for impact assessment, the LCA owner is urged to revise the life cycle assessment.

Independence of verifier:
Daimler AG has not placed any contracts for consultancy on product-related environmental aspects with TÜV SÜD either in the past or at present. There are no areas of financial dependence or conflicts of interest between TÜV SÜD Management Service GmbH and Daimler AG.

Responsibilities:
Sole liability for the content of the life-cycle assessment (LCA) rests with Daimler AG. TÜV SÜD Management Service GmbH was responsible for verifying and validating LCA conformity with the methodical requirements for LCA preparation and the correctness and credibility of the information included therein

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>> Glossary.

abs	Anti-lock braking system, ensures that a vehicle can be steered, even when braking.
BMBF	German Ministry of Education and Research (Bundesforschungsministerium)
CO_2	Carbon dioxide
DIN	German Institute for Standardization (Deutsches Institut für Normung)
Eco-balance	Compilation and evaluation of input and outflows and the potential environmental impact of a product system in the course of its lifecycle.
EEG	German Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz)
EMAS	EMAS (Eco-Management and Audit Scheme) is the world's most demanding system for sustainable environmental management. Organisations are awarded the EU label if they meet the strict requirements set out by EMAS.
esp®	Electronic stability programme, reduces the risk of swerving and stabilises the car.
EU	European Union
GWh	Gigawatt hour
ISO	International Organization for Standardization
kWh	Kilowatt hour
LiBRi	Lithium Ion Battery Recycling Initiative – As part of the project, findings relating to the recycling of lithium ion batteries were collected in cooperation with suppliers and disposal partners.
MORE	Motor Recycling project supported by the German Ministry of Education and Research (BMBF).
MW	Megawatts
NEDC	New European driving cycle; a legally prescribed cycle that has been used in Europe since 1996 to measure emission and consumption levels for cars.
RE	Renewable energies
SLF	Shredder light fraction

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