

# Clean.



Clean mobility. Daimler is on the “road to emission-free driving.” To this end, we have created an environmental road-map that focuses on further efficiency enhancements to combustion engines, needs-based hybridization and locally emission-free electric vehicles with batteries or fuel cells.

First plug-in hybrid with the three-pointed star: the S 500 PLUG-IN HYBRID<sup>1</sup>.

# A pioneer for efficiency.

Exemplary efficiency = superior performance. Daimler offers proof of this equation with the S 500 PLUG-IN HYBRID<sup>1</sup>, a model that once again underscores the Group's leading role in the electrification of premium vehicles. The new luxury sedan from Mercedes-Benz makes a big impression not only with its state-of-the-art hybrid concept but also with the innovations and exclusive appointment details of the S-Class. The centerpiece of the model's plug-in technology is a new high-voltage lithium-ion battery that can be charged externally – using a household power socket, for example. The first luxury sedan certified as belonging to the “three liters per 100 km” category is the third hybrid in the S-Class series and a further key element on the road to emission-free mobility. The first S 500 PLUG-IN HYBRID<sup>1</sup> models were delivered to customers in 2014.



Inspired by F1. Knowledge gained with the Formula 1 drive system was incorporated into the new Mercedes-Benz S 500 PLUG-IN HYBRID<sup>1</sup>. This automobile sets benchmarks for efficiency, dynamic handling and comfort.

<sup>1</sup> S 500 PLUG-IN HYBRID: fuel consumption in l/100 km combined 2.8; CO<sub>2</sub> emissions in g/km combined 65; electricity consumption in kWh/100 km 13.5.

“The S 500 PLUG-IN HYBRID<sup>1</sup> is not only the most efficient hybrid in the luxury segment but also the most intelligent. Its predictive operating strategy regulates the interaction between the electric motor and the combustion engine and adjusts it in line with the traffic situation, the route ahead and the battery-charge state.”

From left to right: Dr. Uwe Keller (Project Manager Hybrid Drive), Thomas Ulrich (Hybrid System Testing), Harald Maurer (Head of S-Class Testing)





**2.8** |  
per 100 km

The S 500 PLUG-IN HYBRID<sup>1</sup> delivers pure driving pleasure with an impressive system output of 325 kW (442 hp), exemplary fuel consumption of 2.8 liters/100 km and CO<sub>2</sub> emissions of 65 g/km.

**A+**  
efficiency class

Use of the electric motor significantly reduces both fuel consumption and CO<sub>2</sub> emissions. The model's top efficiency class rating of A+ is therefore well deserved.

<sup>1</sup> S 500 PLUG-IN HYBRID: fuel consumption in l/100 km combined 2.8; CO<sub>2</sub> emissions in g/km combined 65; electricity consumption in kWh/100 km 13.5.

We are electrifying the premium segment. The S 500 PLUG-IN HYBRID<sup>1</sup> is a further milestone in Daimler's hybrid strategy. Following the S 400 HYBRID<sup>2</sup> and the S 300 BlueTEC HYBRID<sup>3</sup>, this extraordinary luxury sedan embodies the ultimate in hybrid technology.



**Green light for environmentally friendly hybrids.** Daimler is shaping future mobility by combining combustion engines with electric drive systems. Hybrid concepts help reduce fuel consumption and enhance performance. Hybrids also use braking energy to generate electricity to charge the vehicle's battery; this offers the greatest potential for lower fuel consumption. In the S 500 PLUG-IN HYBRID<sup>1</sup>, an innovative high-voltage lithium-ion battery and a state-of-the-art braking energy recovery system ensure maximum energy recuperation.

**Forward-looking plug-in hybrids.** Along with braking energy recuperation, the groundbreaking S 500 PLUG-IN HYBRID<sup>1</sup> also features an onboard charger that enables the vehicle to be recharged using a wallbox or any conventional household socket. The next step on the road to the perfect plug-in hybrid will be inductive wireless charging.

**Pioneer for a sustainable hybrid strategy.** In 2009, we introduced the Mercedes-Benz S 400 HYBRID<sup>2</sup> – the world's first hybrid production vehicle with a lithium-ion battery. For quite some time, this predecessor of the S 500 PLUG-IN HYBRID<sup>1</sup> was the most economical luxury sedan with a gasoline engine. With worldwide sales of approximately 20,000 units, it was also the most successful hybrid in its class.

Now Daimler is continuing its hybrid offensive. All in all, we plan to launch ten plug-in hybrid models on the market by 2017.

# 140 km/h

With a top speed of 140 km/h in the pure electric driving mode, these vehicles will make upper-range driving performance a reality in the hybrid segment.

<sup>1</sup> S 500 PLUG-IN HYBRID: fuel consumption in l/100 km combined 2.8; CO<sub>2</sub> emissions in g/km combined 65; electricity consumption in kWh/100 km 13.5.

<sup>2</sup> S 400 HYBRID: fuel consumption in l/100 km urban 7.4-6.6/extra-urban 6.5-6.1/combined 6.8-6.3; CO<sub>2</sub> emissions in g/km combined 159-147.

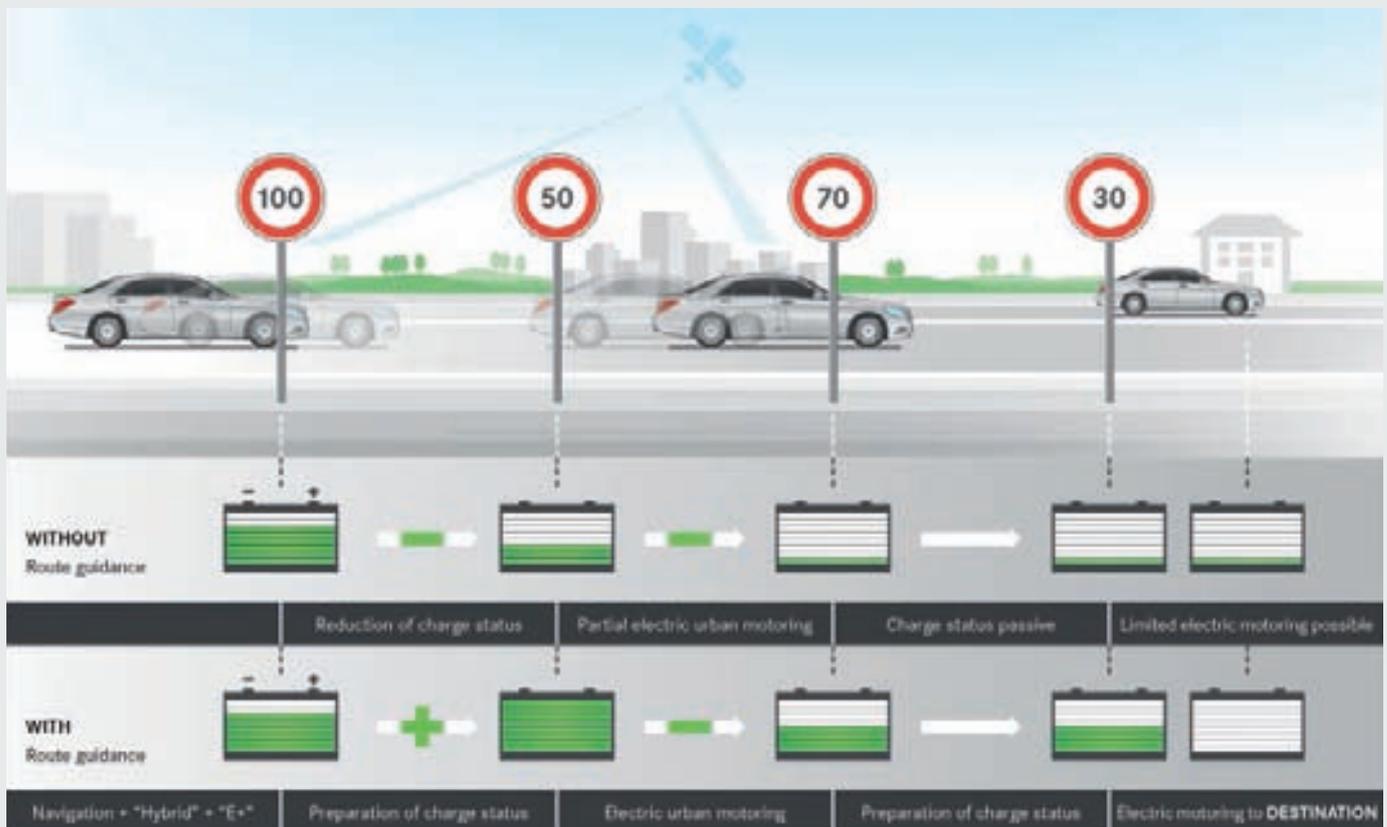
<sup>3</sup> S 300 BlueTEC HYBRID: fuel consumption in l/100 km urban 4.8-4.7/extra-urban 4.6-4.3/combined 4.7-4.4; CO<sub>2</sub> emissions in g/km combined 124-115.



2 h

The high-voltage battery of the S 500 PLUG-IN HYBRID<sup>1</sup> can be recharged in just two hours – using a wallbox (400V/16A), for example. In the future, inductive charging technology will make it possible to recharge batteries without cables or sockets, as shown above.

Route-based operating strategy.



**Efficiency at the push of a button.** The intelligent strategy employed in the S 500 PLUG-IN HYBRID<sup>1</sup> enables automatic selection of the ideal combination of combustion engine and electric motor based on the battery-charge state, the traffic situation or the route ahead, depending on the driver's preference. Interaction between the hybrid drive components can also be regulated manually.

The route-based operating strategy selects for the driver an operating sequence optimally aligned with the route ahead. Once the destination has been entered

into the COMAND Online navigation system, battery charging and discharging processes are selected to ensure optimal energy utilization throughout the trip. One of the goals of the operating strategy is to use the energy in the battery going uphill and then recharge the battery through recuperation on downhill stretches. In addition, the operating system will charge the battery as much possible before the vehicle reaches a city so as to ensure the car can drive electrically and emission-free on city streets. COMAND Online also provides predictive data on route profiles and speed limits.

# Our environmental roadmap.

## We are optimizing our combustion engines.

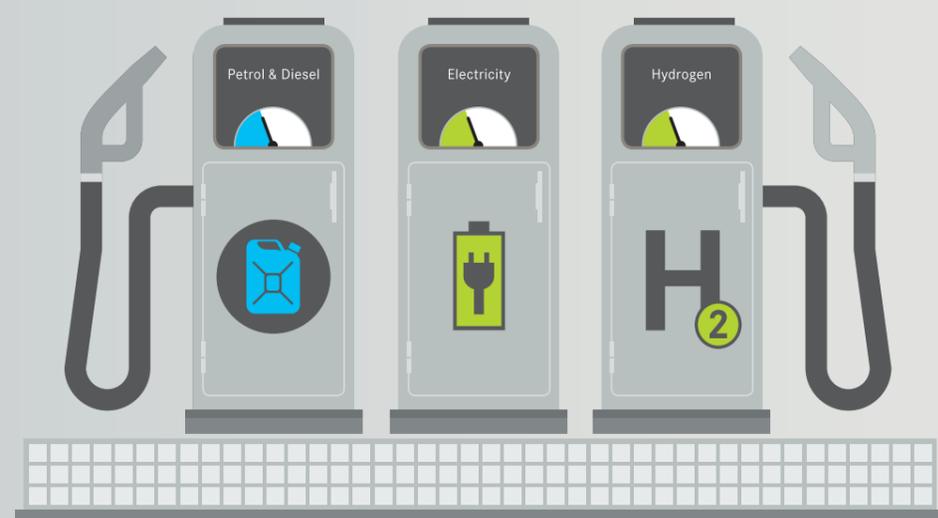
The most effective way to reduce fuel consumption and emissions is to systematically improve the efficiency of combustion engines, because they will be the backbone of mobility also in the future.

## We are improving efficiency through hybridization.

By combining combustion engines with electric motors, we are achieving further significant reductions in fuel consumption and emissions. We're doing this with our modular hybrid system for cars and commercial vehicles.

## We are a pioneer for emission-free drive systems.

Our electric vehicles with batteries or fuel cells ensure not only locally emission-free mobility but also pure driving pleasure.



## Milestones on the way to emission-free mobility.

<p>By 2017</p> 	<p><b>10 new plug-in hybrid models.</b> Within the framework of Daimler's comprehensive hybrid strategy, Mercedes-Benz will launch a total of ten vehicles with plug-in hybrid technology by 2017.</p>
<p>2014</p>   	<p><b>S 500 PLUG-IN-HYBRID<sup>1</sup>.</b> The world's first certified "three liters per 100 km" luxury sedan achieves fuel consumption values that were considered unattainable in the upper-range segment just a few years ago. This record efficiency requires no sacrifices in terms of performance, comfort or vehicle range.</p> <p><b>B-Class Electric Drive<sup>2</sup>.</b> The first premium electric vehicle in the compact segment was initially introduced in the US and then in Europe. The Mercedes of electric cars offers the comfort, quality and safety that are typical of vehicles with the star.</p> <p><b>129 g/km CO<sub>2</sub> emissions.</b> The highest levels of efficiency in all segments. We have reduced the CO<sub>2</sub> emissions of our fleet of vehicles sold in Europe to 129 g/km. More than 100 Mercedes-Benz models have an efficiency class rating of A+ or A and over 60 models emit less than 120 g CO<sub>2</sub>/km.</p>
<p>2013</p>  	<p><b>Euro VI commercial vehicle fleet.</b> Innovative drive systems continually make our trucks, vans and buses even cleaner and more economical and efficient. Daimler was the first manufacturer to offer a complete range of Euro VI commercial vehicles – even before the new emission standards went into effect.</p> <p><b>E 300 BlueTEC HYBRID<sup>3</sup>.</b> The forward-looking combination of a four-cylinder diesel engine and an electric motor makes this E-Class one of the most efficient models in its segment – and a milestone in terms of economy, sustainability and comfort.</p>
<p>2012</p> 	<p><b>smart fortwo electric drive<sup>4</sup>.</b> The third generation of the environmentally friendly city car celebrates its premiere. Today, the smart electric drive is on the road in 18 countries worldwide and is in constant use in the car2go car-sharing program. It's also available as a convertible – the only electric one on the market.</p>
<p>2011</p>  	<p><b>B-Class F-Cell<sup>5</sup>.</b> During the Mercedes-Benz F-CELL World Drive, three electric cars equipped with fuel cells ready for series production clocked up 30,923 km in 125 days. This emission-free "journey around the world" impressively demonstrated the technology's suitability for everyday use.</p> <p><b>Mercedes-Benz Actros.</b> It's the most economical and therefore most environmentally friendly truck in its class. So it's not surprising that the Actros made history with fuel consumption of 25 l/100 km during the 10,000-km "Record Run."</p>

1 S 500 PLUG-IN HYBRID: fuel consumption in l/100 km combined 2.8; CO<sub>2</sub> emissions in g/km combined 65; electricity consumption in kWh/100 km 13.5.

2 B-Class Electric Drive: electricity consumption in kWh/100 km weighted 17.9-6.6; CO<sub>2</sub> emissions combined 0 g/km.

3 E 300 BlueTEC HYBRID: fuel consumption in l/100 km urban 4.1-3.9/extra-urban 4.1-3.8/combined 4.1-3.8; CO<sub>2</sub> emissions in g/km combined 109-99.

4 smart fortwo electric drive: electricity consumption in kWh/100 km 15.1; CO<sub>2</sub> emissions in g/km 0.0.

5 B-Class F-CELL: H<sub>2</sub> consumption in kg/100 km 0.97; CO<sub>2</sub> emissions in g/km 0.0.

## On the road efficiently and emission free.

Clean mobility requires an intelligent combination of combustion engine, hybrid and electric drive. In line with our claim to leadership in green technologies, we continue to develop and produce different kinds of vehicles with customized drive-systems. That's how we are meeting the mobility requirements of today and tomorrow in all areas of road transport.



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