

DAIMLER

Environmental
Program

CO₂-Strategy &
Processes

Life Cycle
Assessment

Resource
efficiency

Sustainability
Management

ESG/SRI Conference
November 19, 2015,
Société Générale, Paris

Mobility
Services



Sustainability Management & Environmental Protection @ Daimler

Dr. Udo Hartmann | Senior Manager Group Environmental Protection

Significant action fields for sustainability management & environmental protection

DAIMLER



Sustainability Report 2014.

Management responsibility					
Product responsibility	Production responsibility	Employee responsibility	Ethical responsibility	Social responsibility	Responsible business partners
<ul style="list-style-type: none"> - customer satisfaction - drive technologies - CO₂-emissions - vehicle safety 	<ul style="list-style-type: none"> - energy efficiency - CO₂-free production - water conservation - waste management 	<ul style="list-style-type: none"> - attractive employer - education and training - health and safety - diversity 	<ul style="list-style-type: none"> - human rights - data protection - compliance - integrity 	<ul style="list-style-type: none"> - support of social initiatives - regional/cross-regional commitment 	<ul style="list-style-type: none"> - business partner - integrity management - compliance with supply chain standards
<p>We concentrate our sustainability management on fields of action that are significant for our stakeholders and ourselves.</p>					

Materiality analysis: Identification of action fields

Product responsibility

	Stakeholders*	Company**
Customer satisfaction	87 (91)	100 (100)
Innovative vehicle and powertrain technologies	86 (91)	92 (88)
Vehicle safety	86 (86)	92 (92)
Fuel consumption and CO ₂ emissions	85 (92)	98 (92)
Conservation of resources (product)	84 (84)	83 (80)
Pollutant emissions (product)	82 (84)	86 (78)
Environmental product development	82 (82)	81 (81)
Mobility concepts and services	75 (74)	79 (75)
Noise emissions (product)	72 (84)	80 (78)

Production responsibility

Energy efficiency and CO ₂ -free production	83 (86)	83 (83)
Water protection	82 (85)	81 (75)
Disposal and resource management	82 (87)	80 (80)
Air purification (production)	80 (84)	75 (78)
Conservation of nature, soil, biodiversity	79 (76)	75 (64)
Logistics and employee transportation	75 (76)	75 (75)

Employee responsibility

Employer attractiveness	88 (84)	93 (93)
Training and continuing education	84 (87)	92 (92)
Occupational health and safety	83 (85)	88 (88)
Generation management	79 (77)	81 (81)
Co-determination	78 (76)	80 (80)
Diversity management	70 (69)	82 (73)

Ethical responsibility

Human rights	90 (90)	92 (88)
Data protection	87 (-)	92 (-)
Compliance	86 (87)	92 (92)
Integrity	82 (87)	96 (92)

Management responsibility

Sustainability strategy and organization	84 (88)	84 (84)
Transparency in the reporting	78 (77)	83 (78)
Inclusion of our stakeholders	73 (76)	80 (77)
Involvement in the political process	70 (71)	75 (80)

Responsible business partners

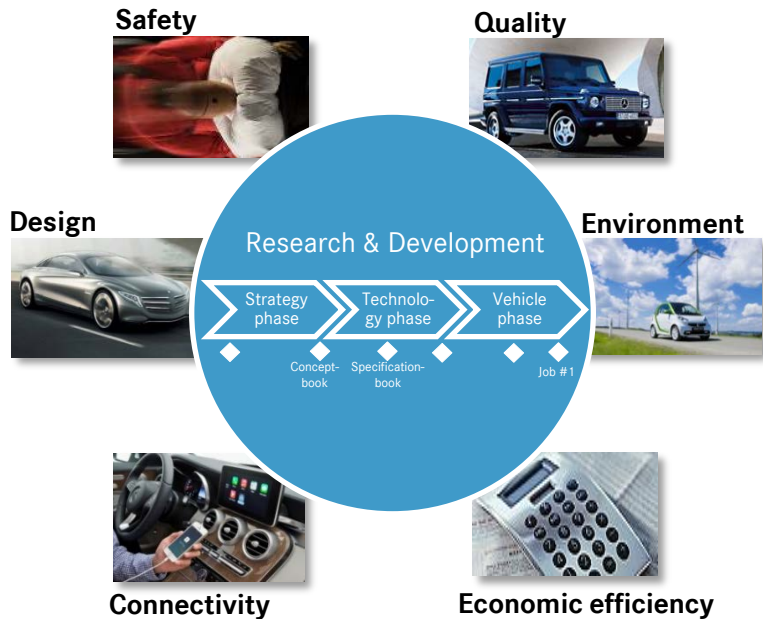
Business partner integrity management	85 (85)	85 (88)
Compliance with standards in the supply chain	84 (87)	85 (85)

Social responsibility

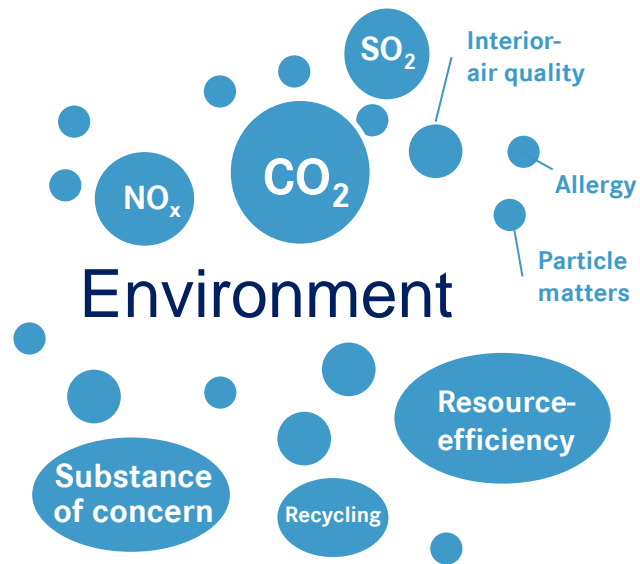
Support of social sustainability initiatives	74 (71)	73 (73)
Regional commitment at our locations	68 (76)	83 (83)
Cross-regional commitment for social issues	68 (60)	70 (64)
Support of voluntary employee commitment	67 (62)	70 (61)
Commitment through own foundation efforts	65 (64)	66 (61)
Company-initiated projects	57 (60)	64 (64)

Evaluation 2013/2014 (2012)
from 0 (= immaterial) to 100 (= very material)

Challenges for research & development of automobiles



Balancing of disparate requirements is a permanent task in Research & Development



Within the different environmental targets contradictory effects are possible



II. Environmental Program

Environmental protection as key element over the entire life cycle of a vehicle



Significant environmental protection targets are based in the overall Daimler-Sustainability Program

	Climate protection & Energy		Air quality & Health		Resource conservation	
Research and Development	Reduction CO ₂ emissions passenger cars	-30% 2007 - 2016	Early compliance Euro 6 for passenger cars	-50% End of 2014	Use of renewable raw materials MBC	+25% 2010 – 2015
	Reduction CO ₂ emissions light commercial vehicles	-10% 2014 - 2018	Introduction of EEV engines for all van	100% End of 2013	Use of recyclates MBC	+25% 2010 – 2015
	Reduced consumption of heavy duty com. vehicles	-20% 2005 - 2020	Euro 6 type approval of Daimler com. vehicles	30% End of 2013		
Production, Use, Recycling	Reduction specific CO ₂ emissions in plants	-20% 2007 - 2015			Increased use of car2go	Factor 10 2011 - 2015
	Reduction absolute CO ₂ emissions in plants (EU)	-20% 1990 - 2020			Construction of a hydrogen infrastructure	400 By 2023
	Reduction of CO ₂ and nitrogen oxide emissions over the entire life cycle for each new model generation			10-20% Comp. predecessor	Recovery rate end-of-life vehicle	95% by 2015

Compliance with all legal regulations in the relevant countries is the bases of our business

One example for our ambitious targets

Fuel consumption and CO₂ emissions – main markets

CO₂ emissions passenger cars in Europe.

- Reduction of CO₂ emissions (basis NEDC) of the EU new-vehicle fleet to **125 g of CO₂/km by 2016** (corresponds to a reduction by around **30 percent in the period from 2007 to 2016**).
- Consistent further electrification of the powertrain for achievement of Daimler-specific EU fleet targets in the year 2020.

Further reduction by 4 percent.

- After the successful achievement of the designated interim target for 2012, the **CO₂ emissions in the European fleet in 2014** were reduced by another 5 grams to **129 g of CO₂/km, a reduction by 27.5 percent vs. 2007**.

Highlights at the product level:

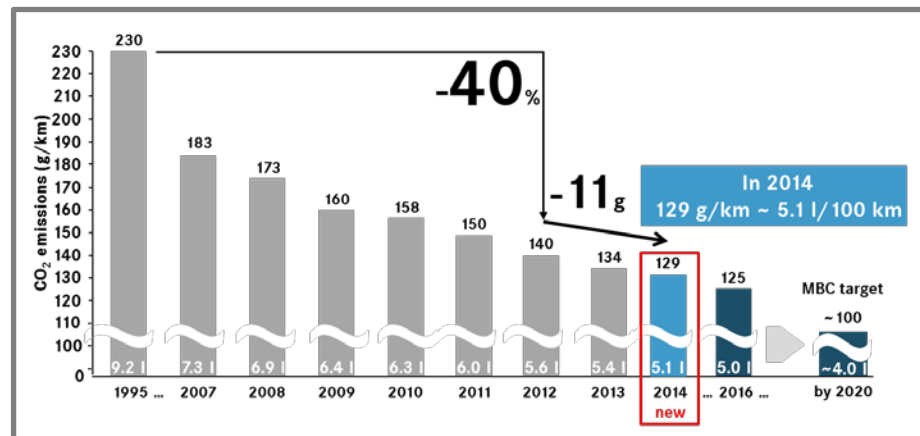
- New consumption-optimized 9-speed automatic transmission introduced in additional model series.
- Roll-out of new S-Class with significant fuel consumption reductions (-20 percent).
- Launch of new C-Class with significant fuel consumption reduction of up to 20 percent.
- Launch of additional hybrid vehicles and launch of S 500 Plug-in HYBRID.

2016



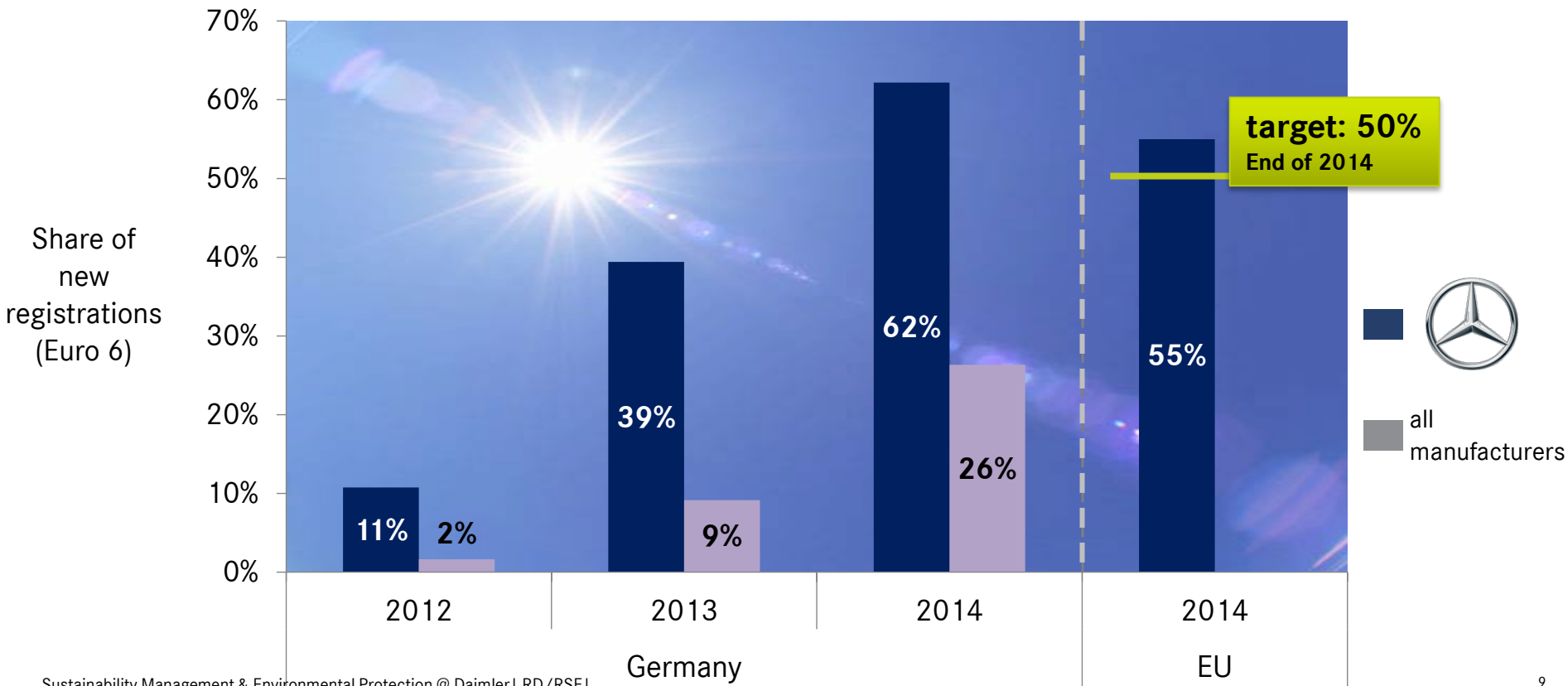
90%

51



The interim target 2014 was achieved only partially achieved

Mercedes-Benz trailblazer in introduction of Euro 6



Unique positions for MB with “ECARF”- allergy label European Centre for Allergy Research Foundation



Certificates granted for:

- A-Klasse W 176
- B-Klasse W 246
- GLA X 156
- CLS-Klasse C 218
- GL/M-Klasse X 166
- S-Klasse W/V 222
- S-Coupe C 218
- C-Klasse W 205

Future models will also be developed in line with the ECARF standard

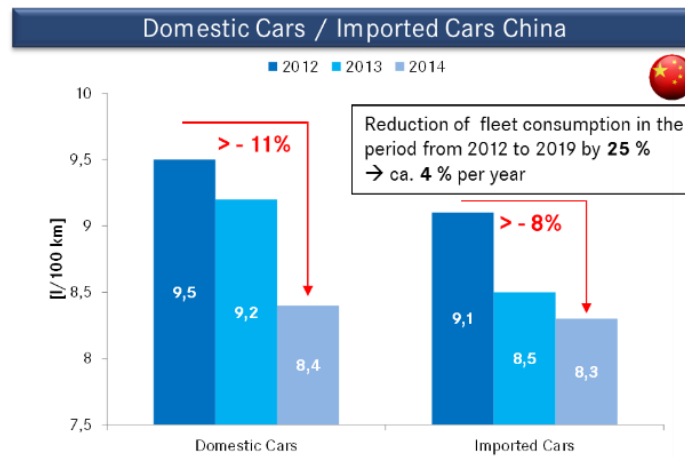
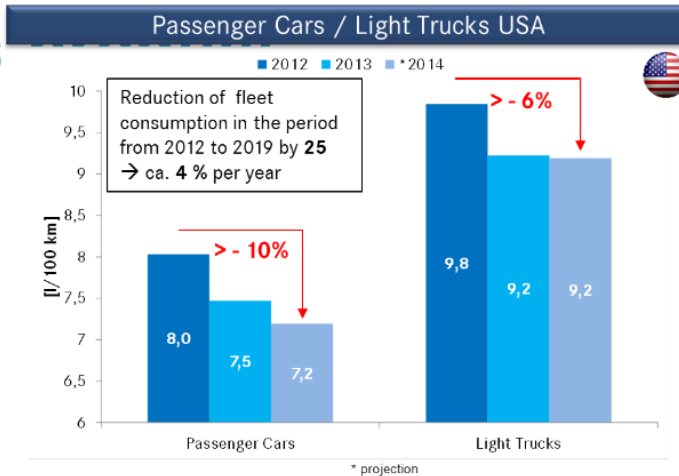
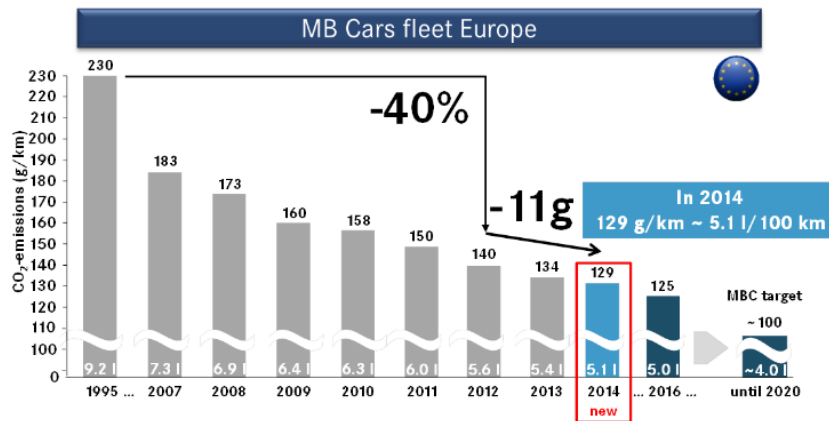




III. CO₂-Strategy and Processes

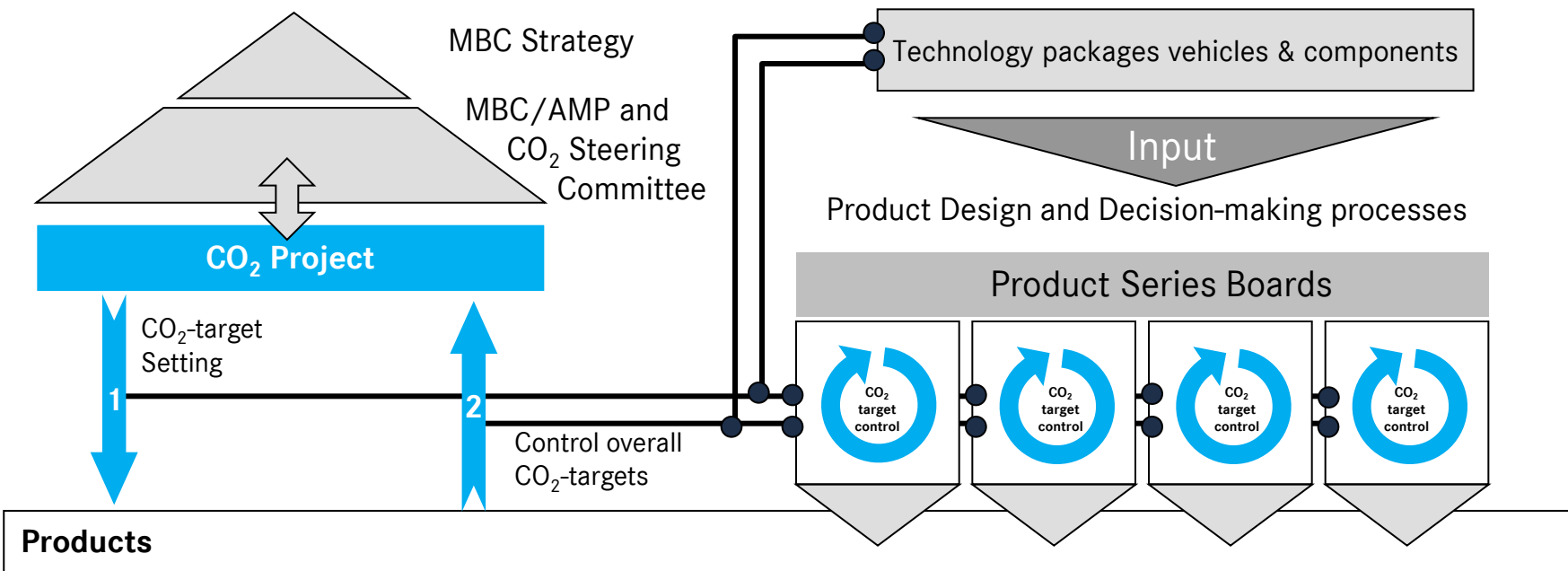
CO₂- & consumption targets

Europe / USA / China



CO₂ emission control is integral part of R&D organization and processes

CO₂ Project is responsible for target setting, controlling and reporting



Our strategy for sustainable mobility



High-Tech
combustion engines



HYBRID



Further efficiency
with hybridization

electric
drive



Electric vehicles with
battery and fuel cell drive

High Tech combustion engine and new transmission

Efficiency increase of the A-Class up to 20%

A 180 d BlueEFFICIENCY Edition

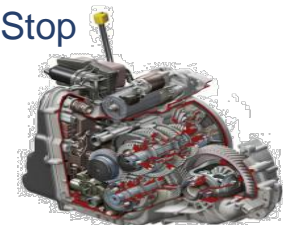
- 3,5 l/100 km
- 89 g CO₂/km



New Gasoline and Diesel engines

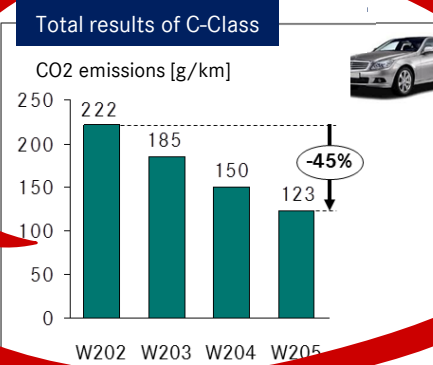
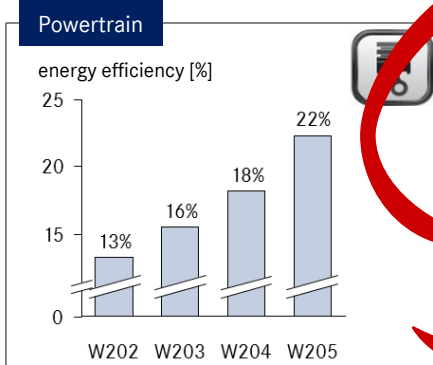
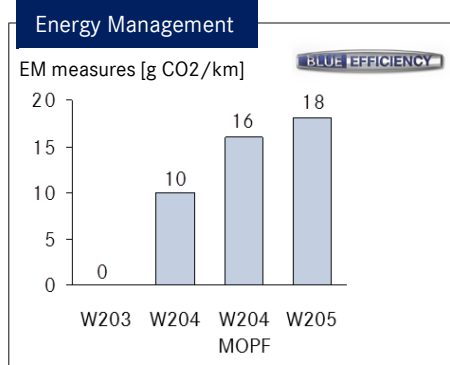
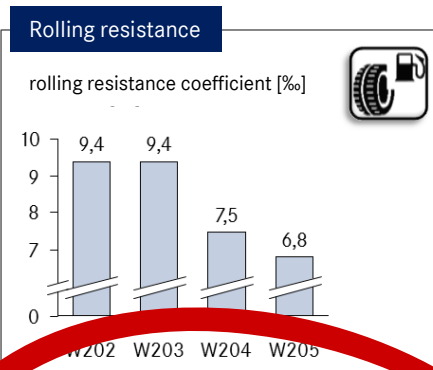
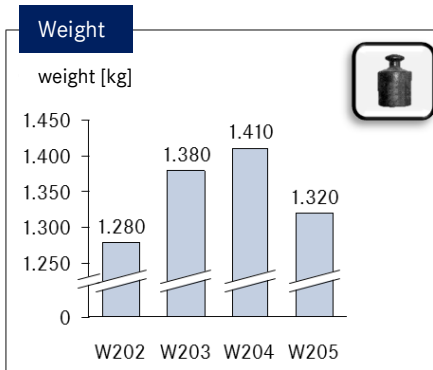
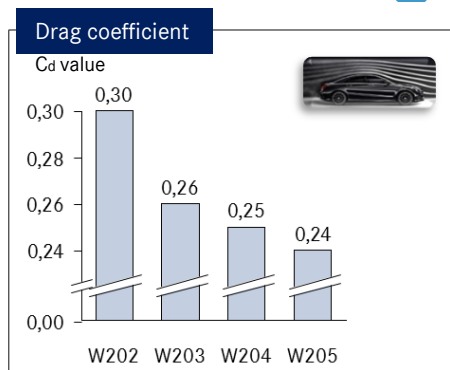


- Turbocharging
- Camtronic
- Multispark injection
- Eco Start-Stop



New manual & DCT-transmission

All disciplines must be included to achieve a significant CO₂-reduction – e.g. the new C-Class



Our modular Hybrid-Kit

We will provide 10 PLUG-IN Hybrid cars until 2017

Global markets

Premium products
for our customers
worldwide



Diversity

Model



Bodystyle



Petrol
&
diesel...



Full-hybrid
&
Plug-In...

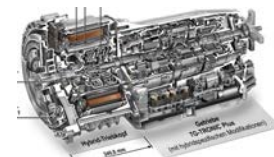


Left-
&
right-hand drive...



Hybrid modules

Hybrid transmission,
integrated e-motor



Power electronics



HV-battery



...

On the way to emission-free driving

optimized combustion
engines



A 180 d BE Edition

89 gCO₂/km

Hybridization



S 500 e long (PLUG-IN HYBRID)

65 gCO₂/km

emission-free driving,
battery/fuel cells



B 250 e (Electric Drive)

0 gCO₂/km



Actros

26 gCO₂/tons per kilometer



CapaCity

14 gCO₂/km per Passenger



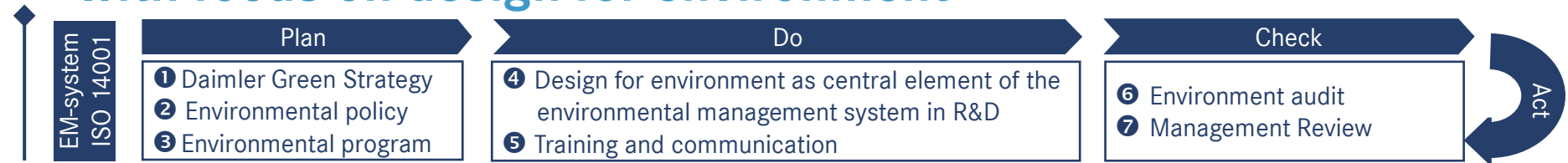
Fuso Canter E-CELL

0 gCO₂/km



IV. Life Cycle Assessment

Elements of the environmental management system R&D with focus on design for environment



Life cycle Assessment

Life Cycle Assessment: Element of Daimler's Green Strategy.

The areas of application are...

Vehicle level



Comparison of previous /successor model



Comparison of different drive train concepts

System level

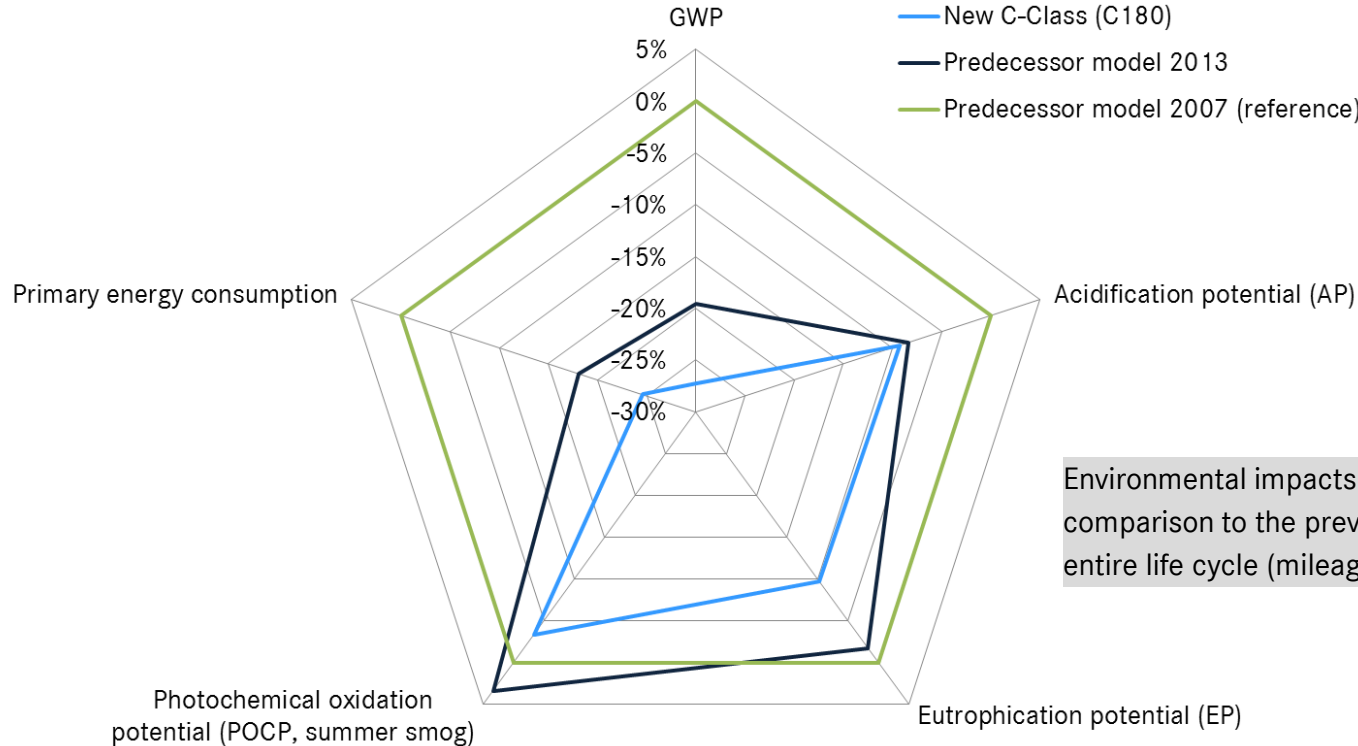


Comparison of component and material concepts



Comparison of production processes

Life Cycle Assessment new C-Class

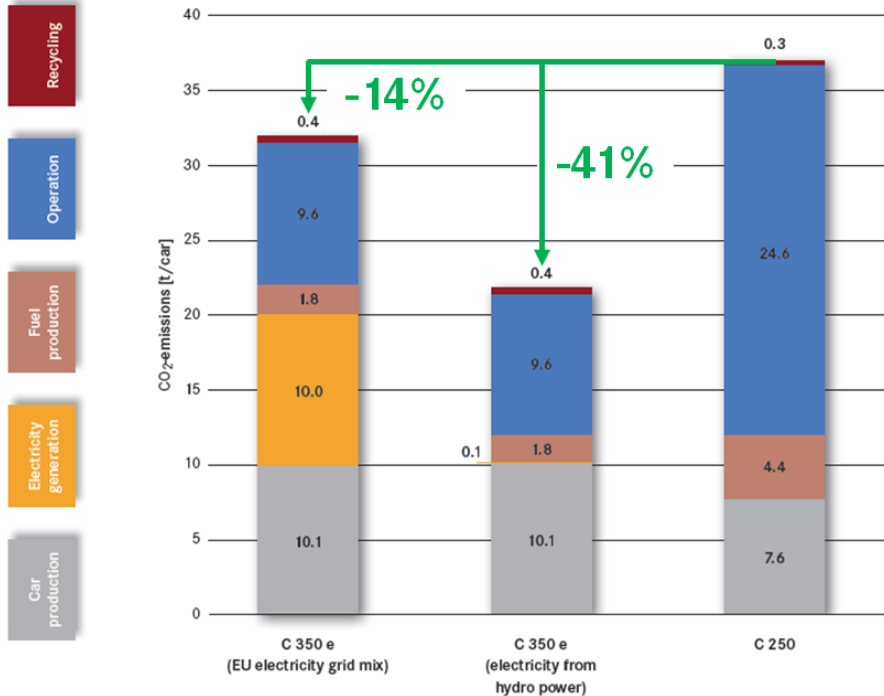


Fuel consumption:
 117gCO₂/km; 5,0l/100km
 136gCO₂/km; 5,8l/100km
 177gCO₂/km; 7,4l/100km

Environmental impacts of the new C-Class in comparison to the previous models (market entry/ exit) entire life cycle (mileage 200.000 km)

Plug-In-Hybrids with positiv environmental impact

Carbon Footprint C-Class C350e vs C250



Life cycle COMPACT



Life cycle Assessment: Customer-oriented presentation



V. Resource efficiency

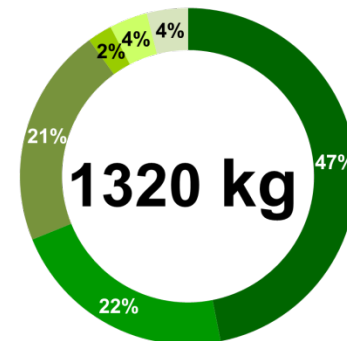
Which resources do we need material and energy resources in the vehicles life cycle



Example C-Class C 180 – travelled 200.000 km, environmental certificate 2015

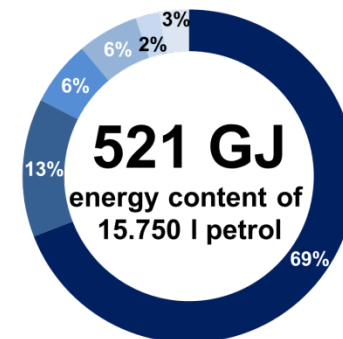
Material resources

- Steel/ferrous
- Light alloys
- Polymers
- Other metals
- Service fluids
- Other materials



Energy resources

- Crude Oil
- Natural gas
- Hard Coal
- Renewable energy
- Lignite
- Uranium

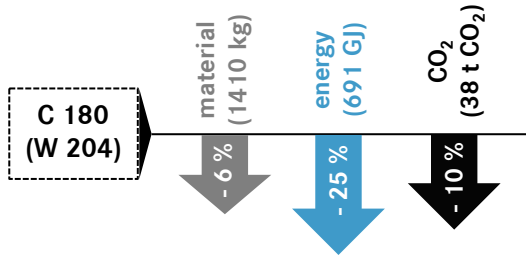


Future drive train systems – conflict of interests

High-Tech combustion engines



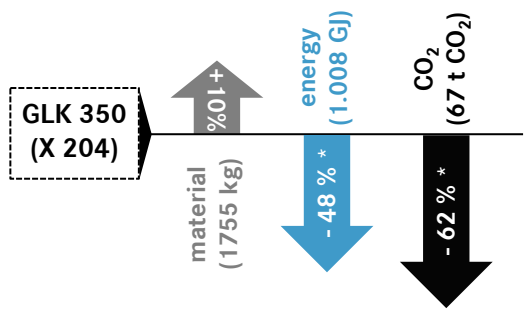
New C-Class



Hybrid vehicles



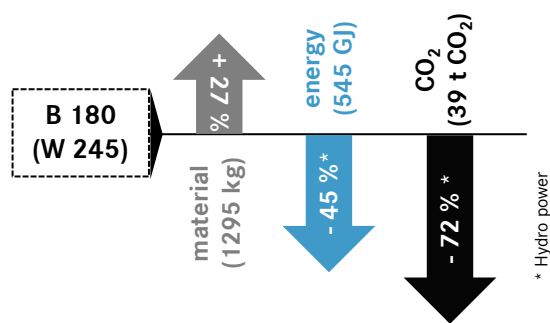
GLC 350 e Plug-In Hybrid



Electric vehicles with battery or fuel-cell



B-Class Electric Drive

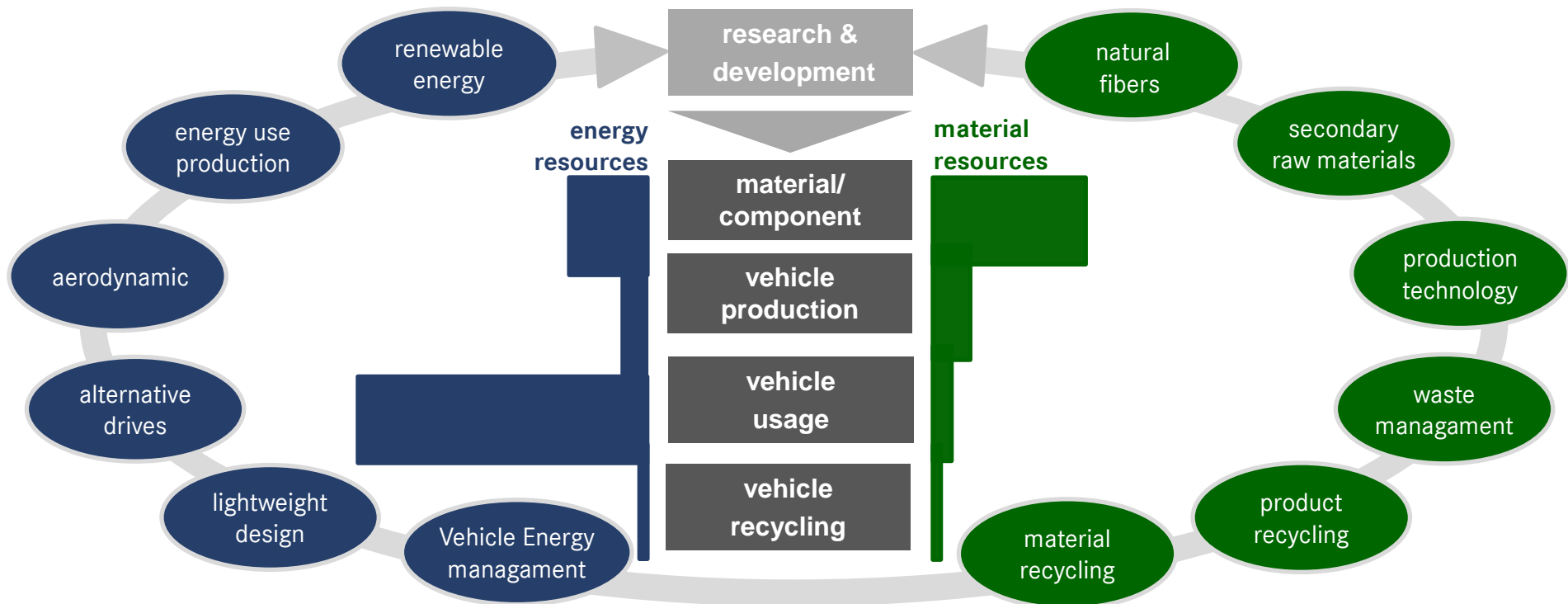


* Hydro power

Electrification is leading to a significant reduction of fuel consumption and CO₂ emissions, however today, the necessary material input is much higher

Strategies for increasing resource efficiency

Which levers do we have in research and development





VI. Mobility Services

Pioneer in mobility concepts & services



10.700 petrol cars



2013 → > 500.000 user

2014 → < 1.000.000 user

2013 → > 15.000.000 rental transactions

2014 → < 30.000.000 rental transactions

Good for the environment - good for you



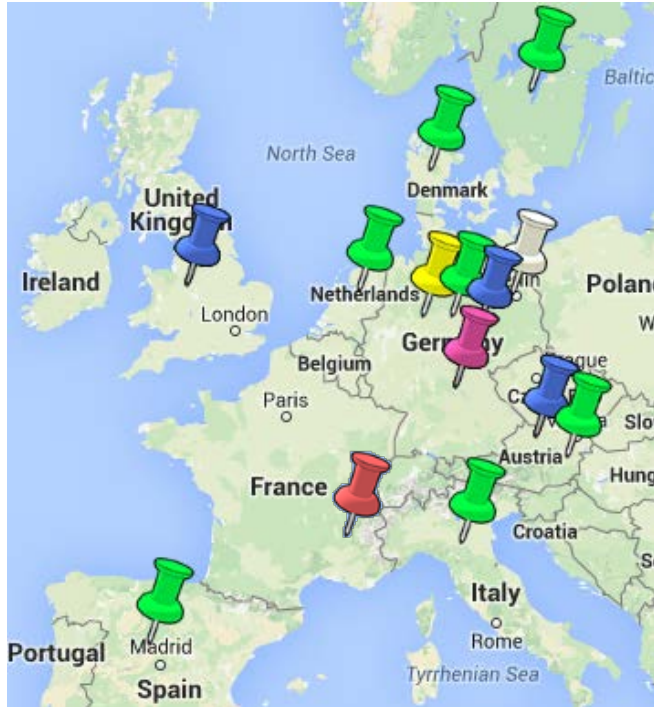
1.250 electric drive



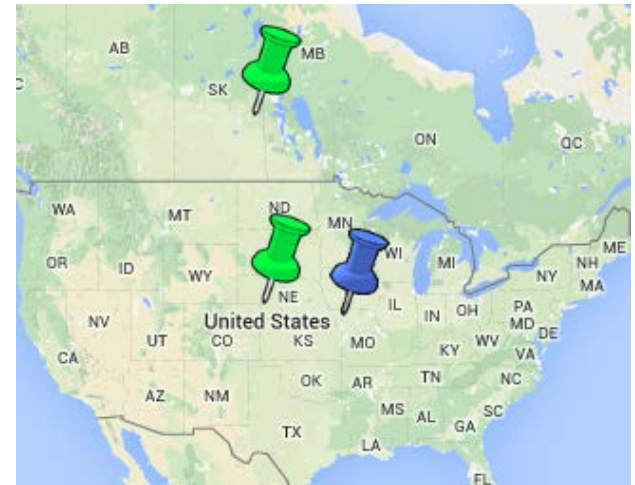
29 cities in EU and USA/Kanada



Geographic distribution of carsharing - including pilot projects



-  Daimler (30 cities)
-  BMW (7 cities)
-  VW (1 city)
-  Citroën (1 city)
-  Toyota (3 cities)
-  Ford (x)



Thanks for your attention

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Sustainability Management & Environmental Protection @ Daimler

Dr. Udo Hartmann | Senior Manager Group Environmental Protection

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