

DAIMLER

Sustainability Roadshow

Frankfurt, July 14, 2014



Outline

1. Environmental Issues

2. Integrated Environmental Protection - methodological Issues

3. Product Issues

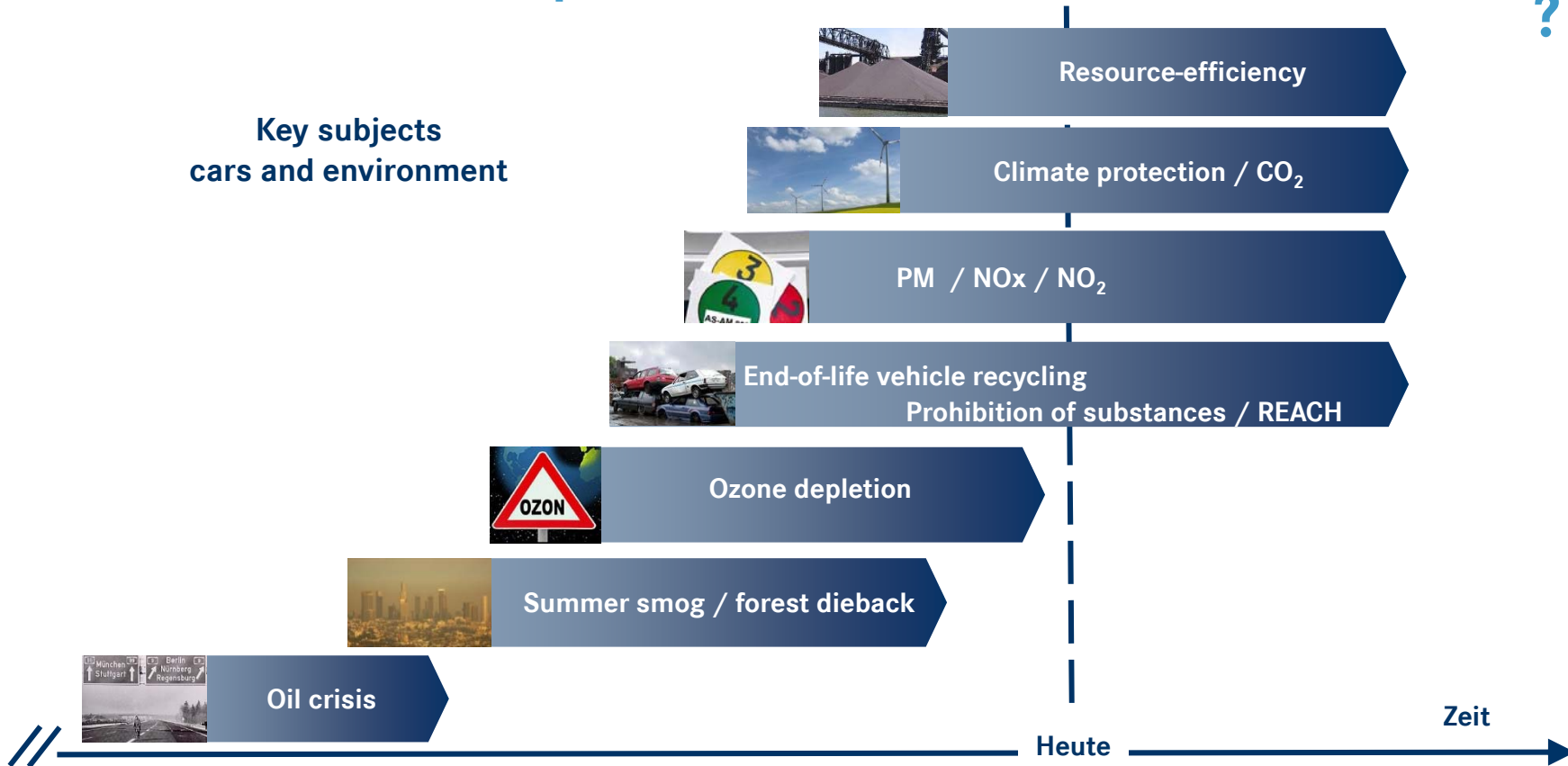
4. Production related Issues

5. Summary

Environmental 'hot potatoes' ...

?

Key subjects
cars and environment



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Environmental protection is an integral part of the overall value chain of a vehicle



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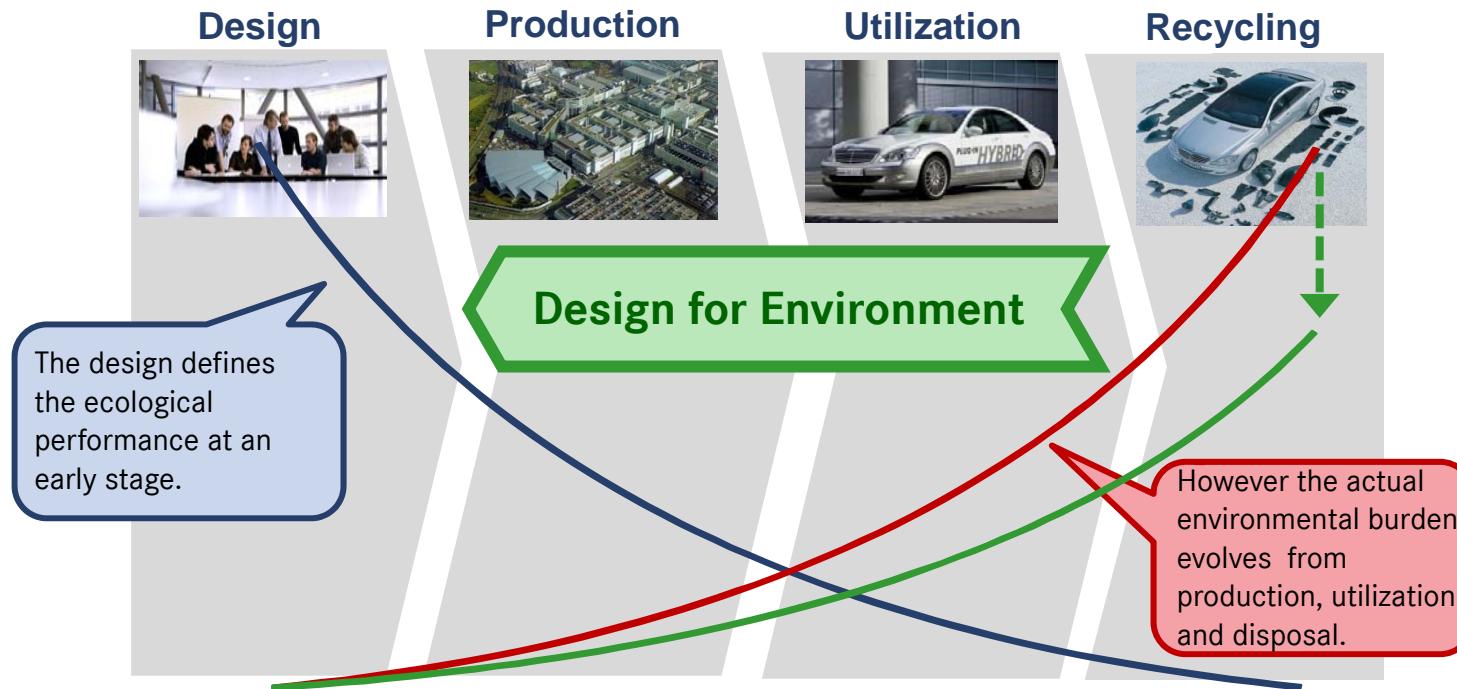
2. Integrated Environmental Protection - methodological Issues

3. Product Issues

4. Production related Issues

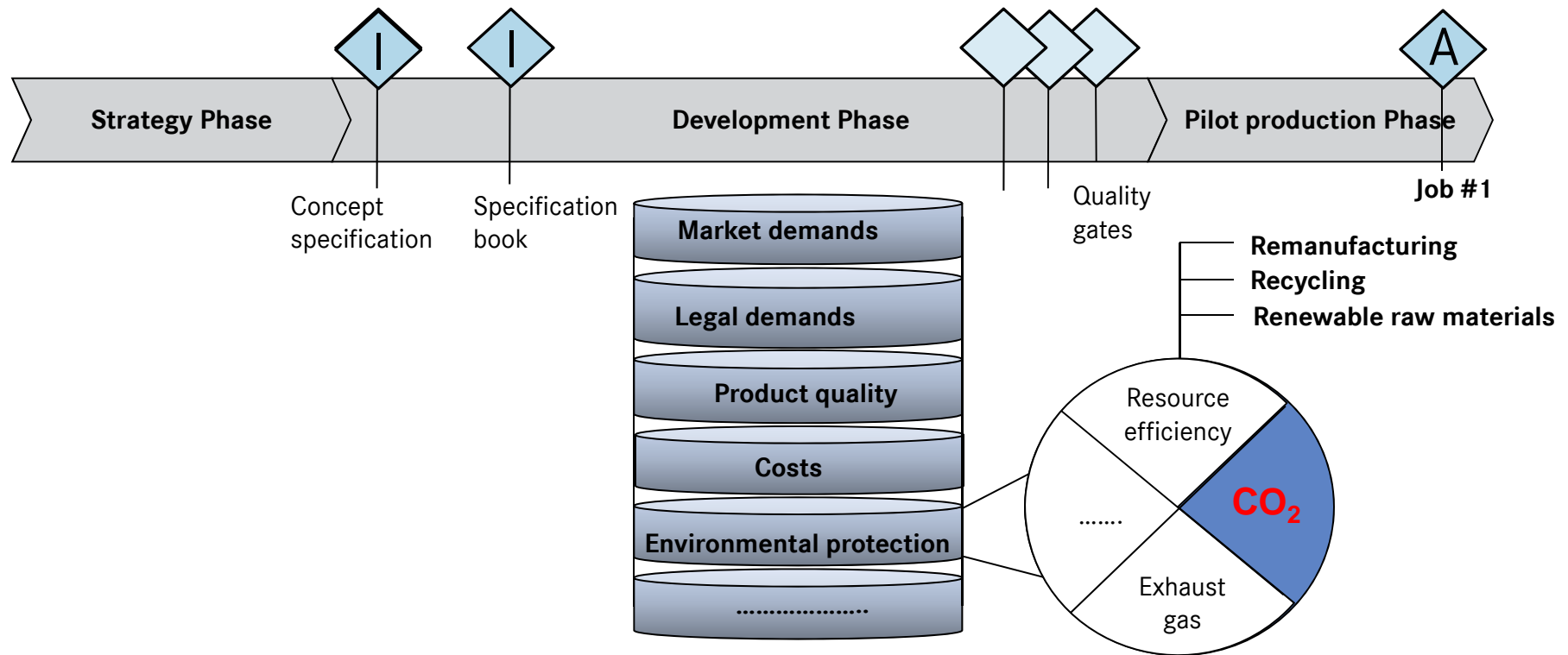
5. Summary

Design for Environment as key element for anticipatory environmental protection



The impact of the production process and of the product on the environment have to be judged in advance and entirely considered within business decisions.

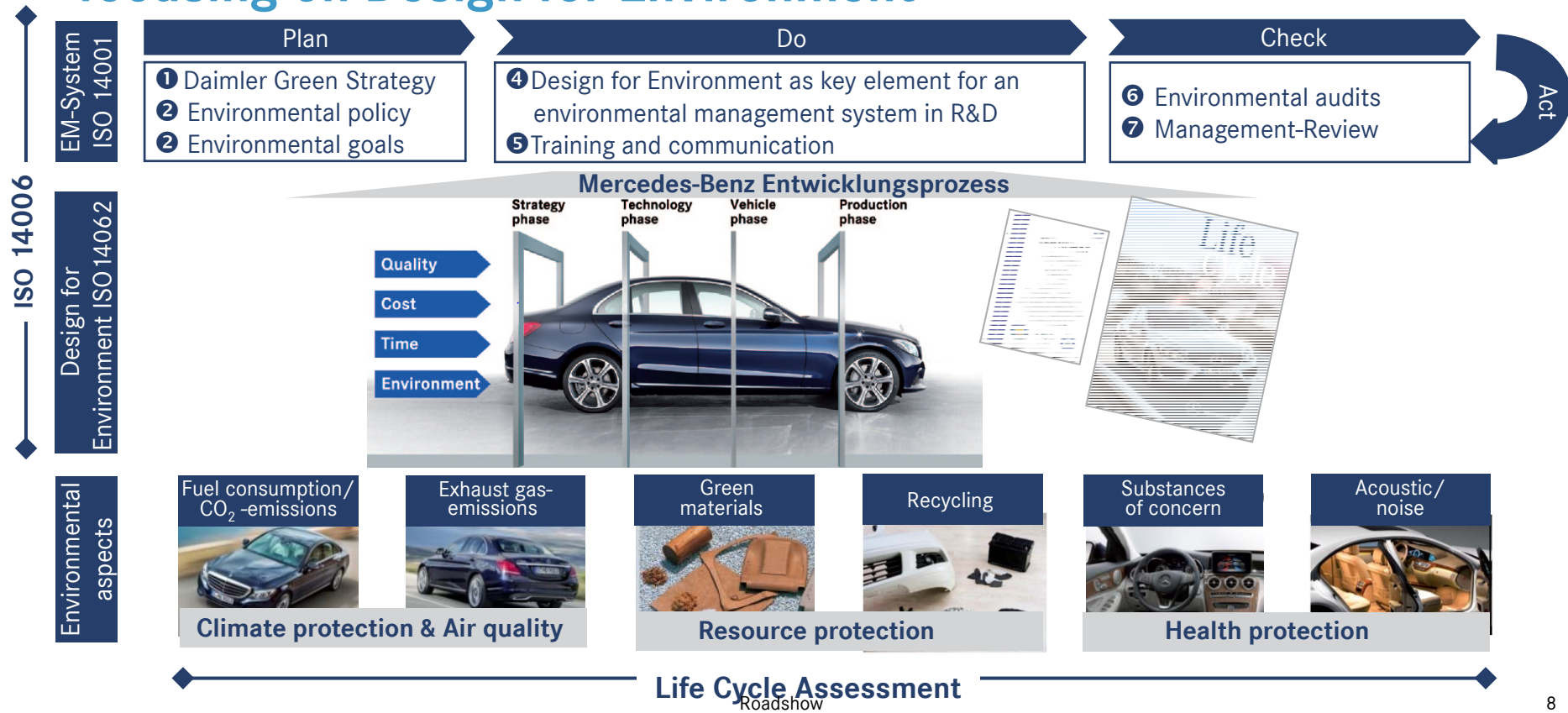
Various challenges in the product development



Balancing of different demands is an ongoing task in the process of product development.

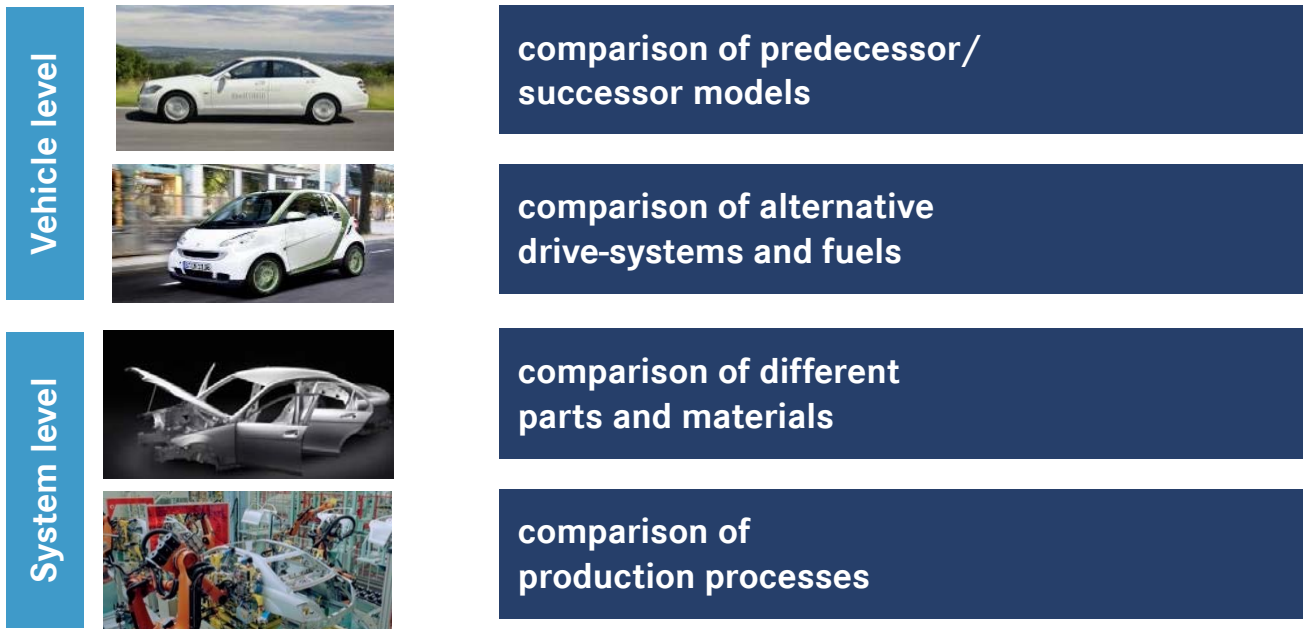
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Elements of the environmental management system MBC/D focusing on Design for Environment

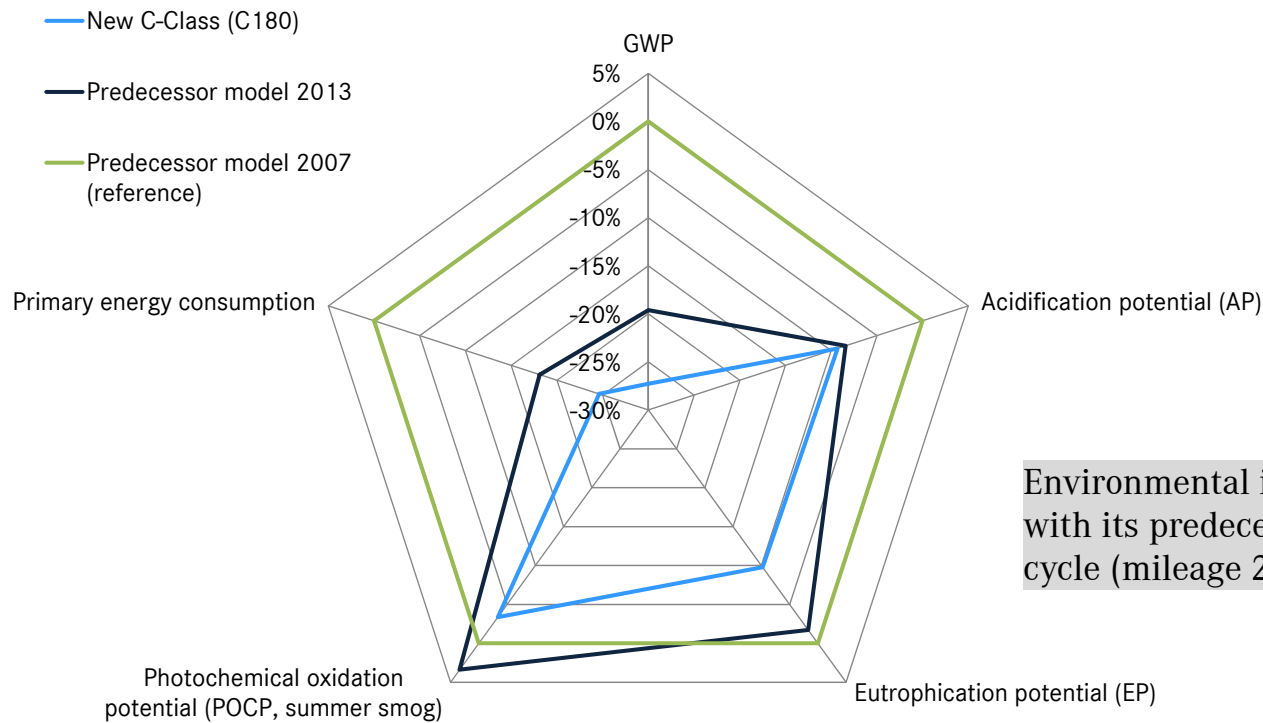


Life Cycle Assessment: Integral Part of our DfE Strategy

Areas for Application...



Life Cycle Assessment new C-Class



Fuel consumption:

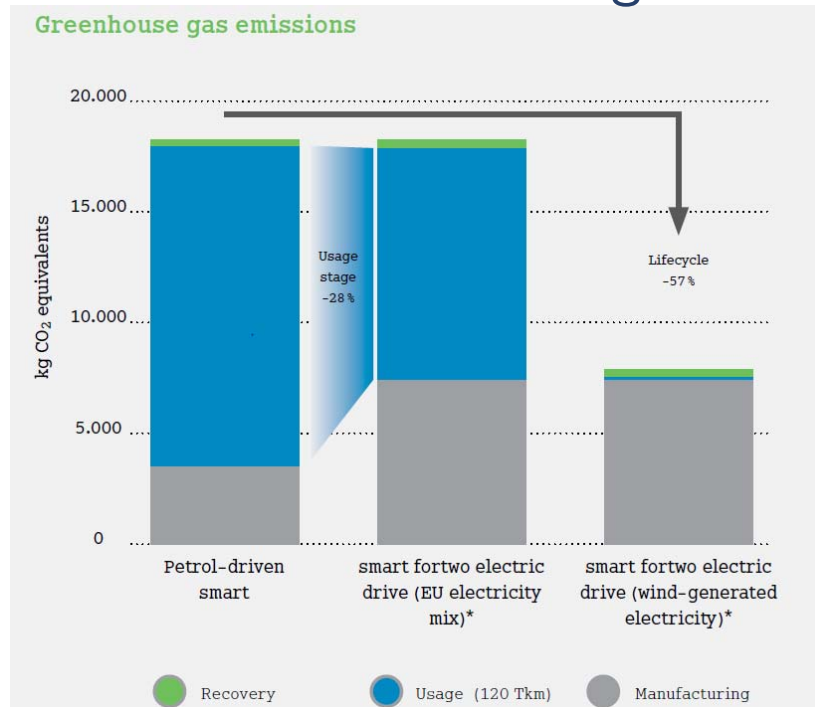
117gCO₂/km; 5,0l/100km

136gCO₂/km; 5,8l/100km

177gCO₂/km; 7,4l/100km

Environmental impact of new C-Class compared with its predecessor market entry/-exit, entire life cycle (mileage 200,000 km).

Life Cycle Assessment: Alternative propulsion systems smart electric drive versus gasoline



Renewable energy

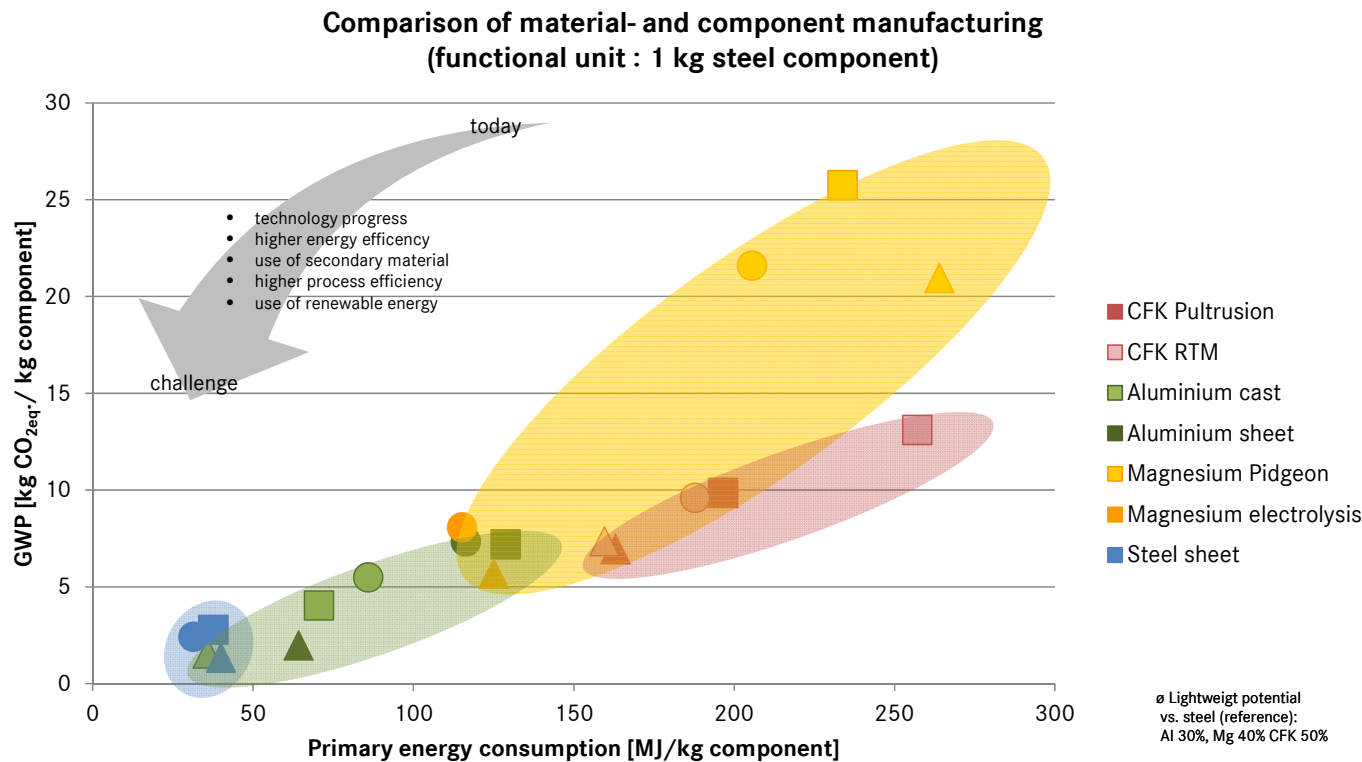


Closing the loops



Over the entire life cycle contributions to the greenhouse effect made by the smart electric drive with renewable energy is almost 60 percent less than the smart gasoline.

Lightweight construction – Life Cycle Assessment of component manufacturing

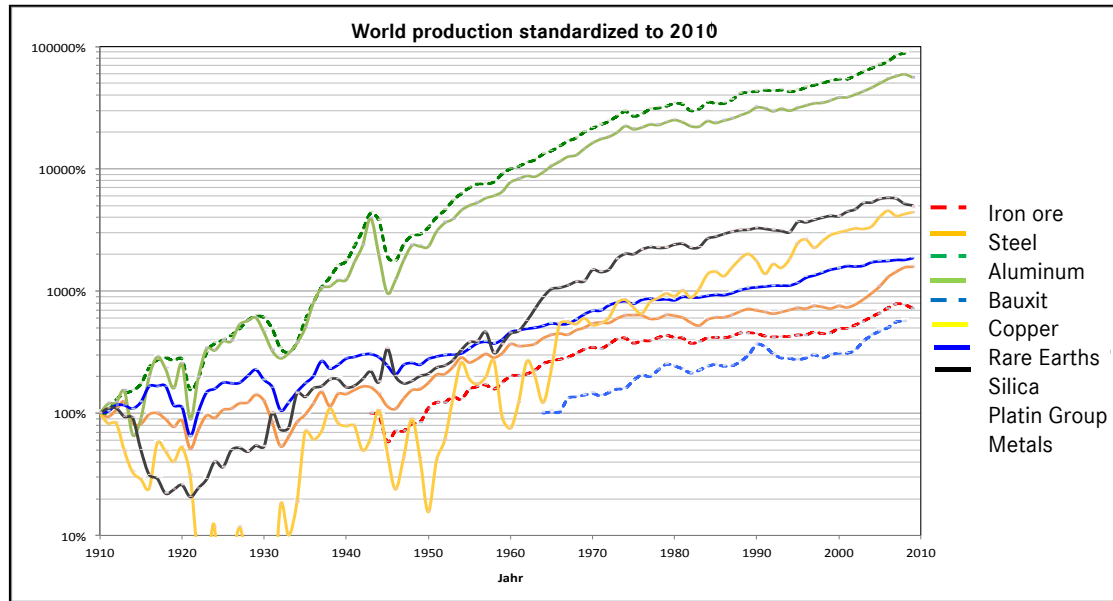


Roadshow

- **Steel:** Only small improvements are expected for future scenarios. Overall, the lowest effort for the production - despite extra weight.
- **Aluminium:** Reducing energy consumption in electrolysis (scenario "trend") is compensated by higher import mix especially from China. Use of renewable energy results in a significant leap in the Life Cycle Assessment into the direction of steel.
- **Magnesium:** Significant difference between today's Pidgeon-process (thermal energy) and electrolysis.
- **CFK:** Significant improvement with hydroelectric power and optimized production processes.

Resource consumption and implications

The world wide production of raw materials has increased during the last 100 years by the factor 5 to 1000.



Source: www.mining-technology.com

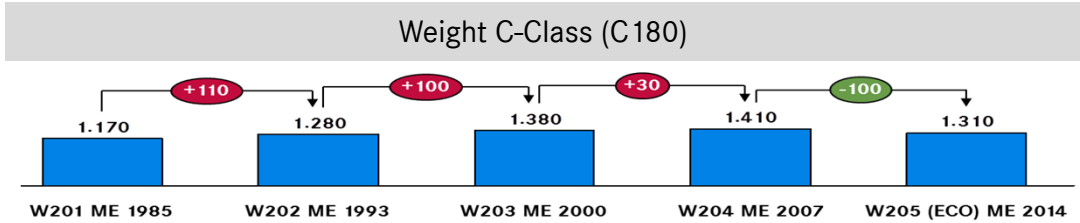
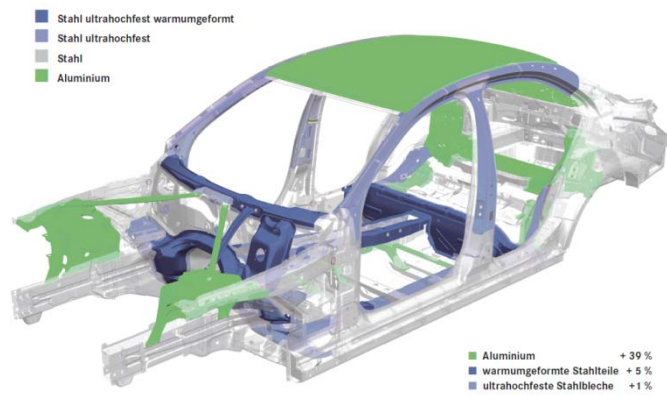


Source: Wikipedia

Clear need to enhance resource efficiency

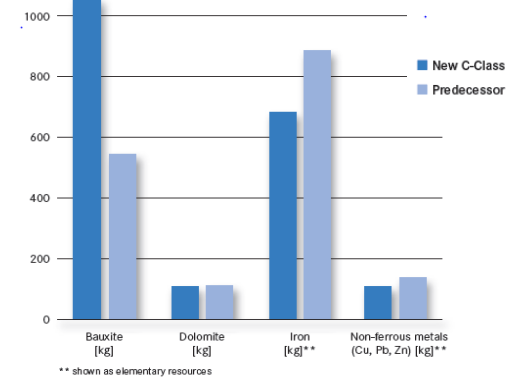
Resource protection: new C-Class Material- and energy resources

Weight reduction up to 100 kg through increased utilization of lightweight materials and other measures.

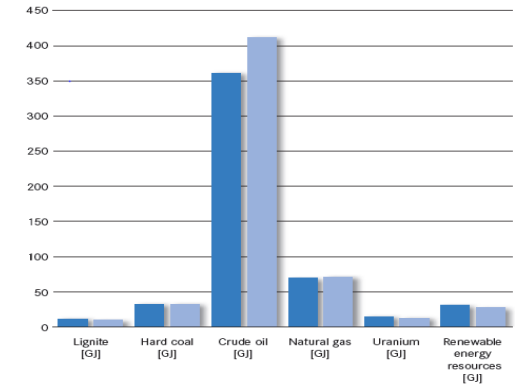


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Material resources [kg/vehicle]



Energy resources [G]/vehicle



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Resource protection: new C-Class...

Use of secondary raw materials



Component	New C-Class	Predecessor	
weight in kg	49,3	40,1	+ 23 %

Use of renewable raw materials



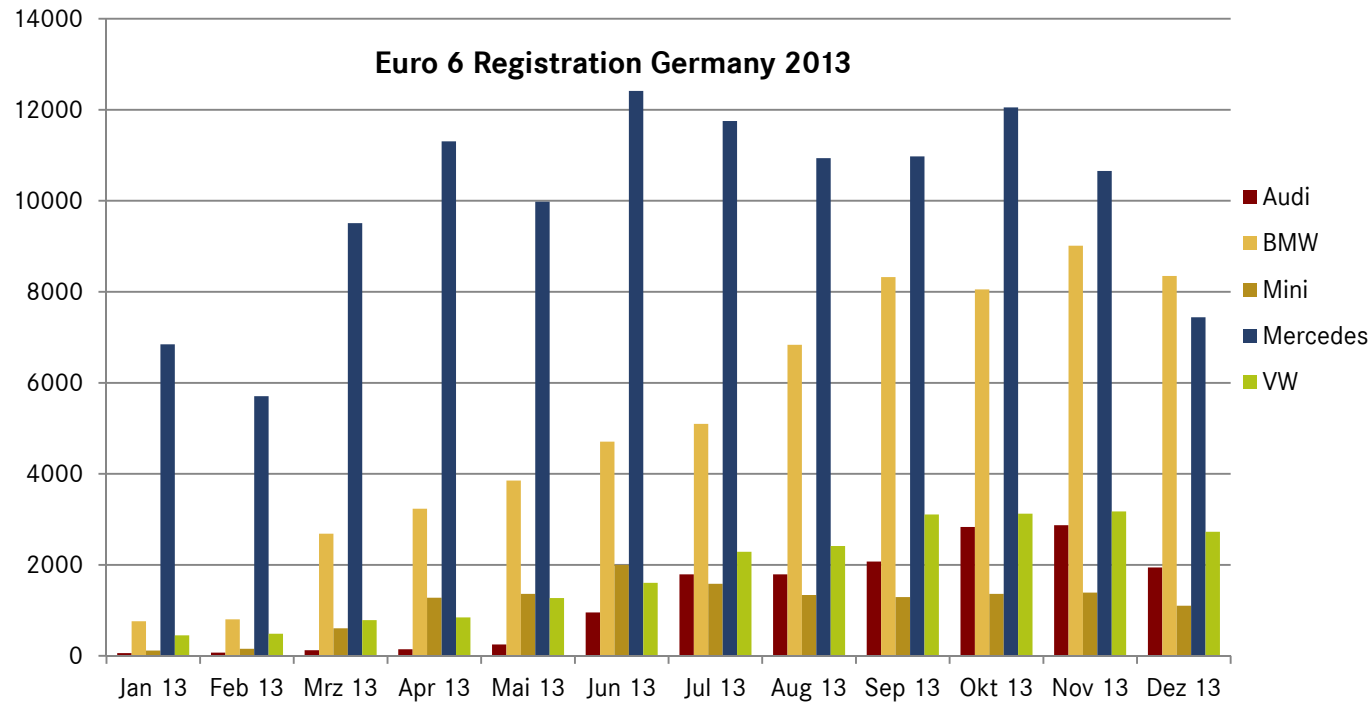
Component	New C-Class	Predecessor	
weight in kg	26,3	17,0	+ 55 %

Due the increasing use of secondary and renewable raw materials, the new C-class makes an active contribution to resource protection.

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Euro 6 PC Registration in Germany 2013 (Prefullfilment)





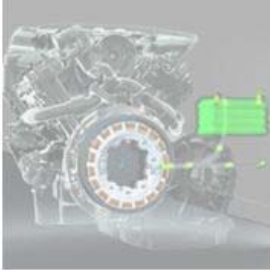



Share of MB-Pkw on all Euro 6 new Registration in Germany:
 2012: **80,0%**
 2013: **51,5%**

11,8% of all MB vehicles sold in 2012 met Euro 6, in 2013 already **43,1%**

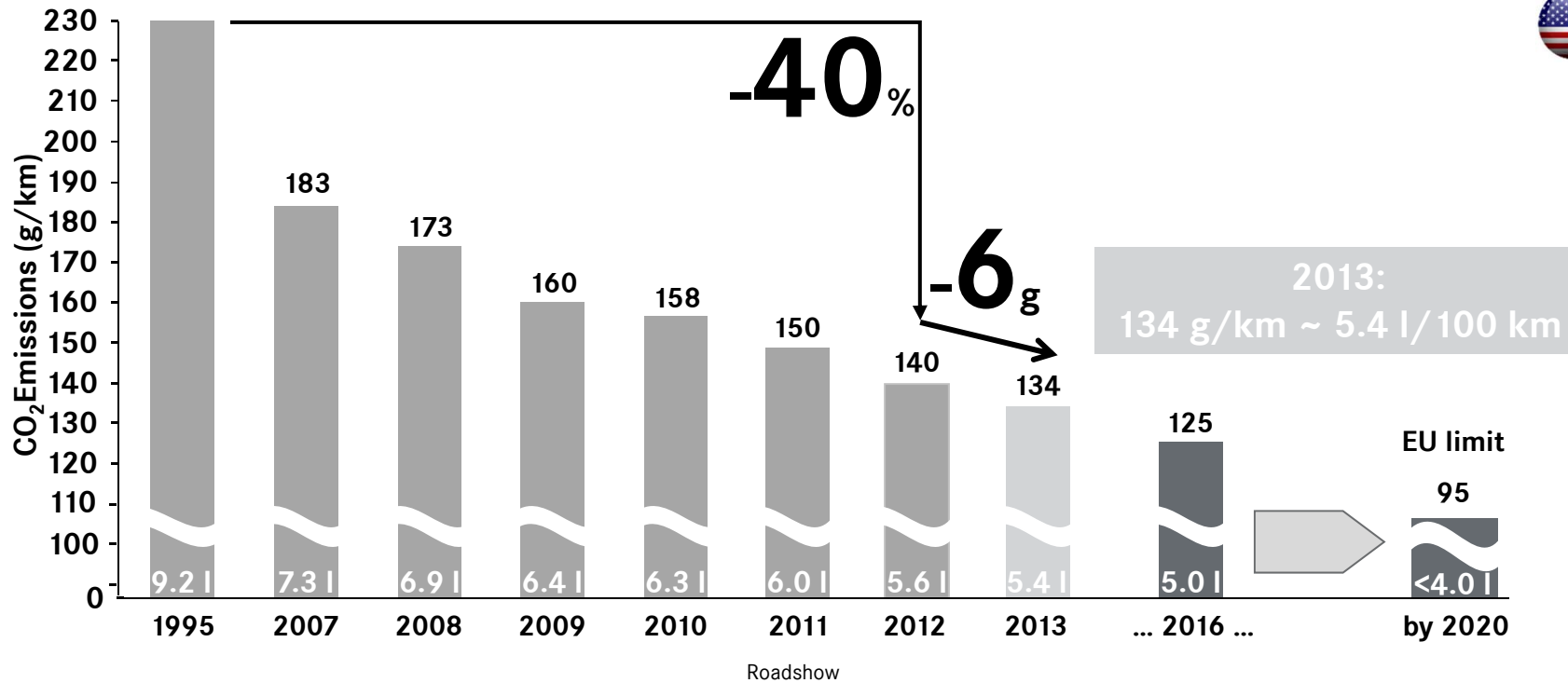
Source: KBA

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The Road to Emission-Free Mobility

High-tech combustion engines	Combustion engines with hybridization	Electric vehicles with battery and fuel cell
 	 	 
<p>A 180 CDI BlueEFFICIENCY</p> <p>3.6</p> <p>l/100 km 92 g CO2/km</p>	<p>S 500 PLUG-IN HYBRID</p> <p>3.0</p> <p>l/100 km 69 g CO2/ km</p>	<p>B-Class Electric Drive</p> <p>0</p> <p>l/100 km 0 g CO2/km</p>

The Road to Emission-Free Mobility Mercedes-Benz Cars Fleet in Europe



The Road to Emission-Free Mobility

Battery-operated electric vehicles

smart electric drive



- Production start under series conditions since end of 2009
- Maximum range about 140 kilometers
- Available with rental battery since summer 2012

B-Class Electric Drive



- Presented at the IAA 2013
- Maximum range about 200 kilometers
- Market launch in the USA in Spring 2014, market launch in Europe planned for Fall 2014.

SLS Electric Drive



- Market launch in series in 2013
- At 552 kW/ 1000 Nm most powerful electric sports car in the world
- Maximum range about 250 kilometers

DENZA



- Vehicle with fast-charging station developed especially for the Chinese market
- World premiere at Auto China 2014, Market launch in China during 2014

The Road to Emission-Free Mobility Electric vehicles with fuel-cell powertrain

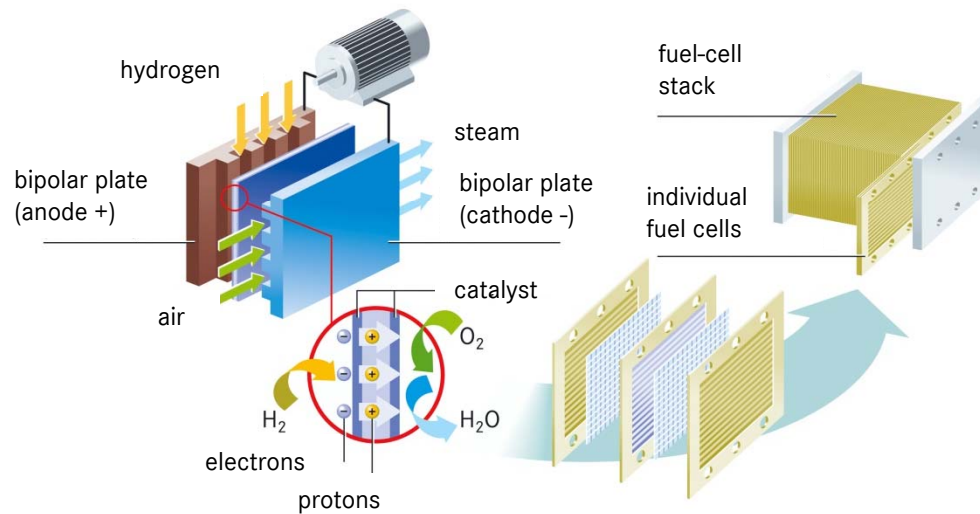
B-Class F-CELL



A yellow Mercedes-Benz B-Class F-CELL car is shown parked outdoors. The car has "Mercedes-Benz F-CELL World Drive" branding on its side.

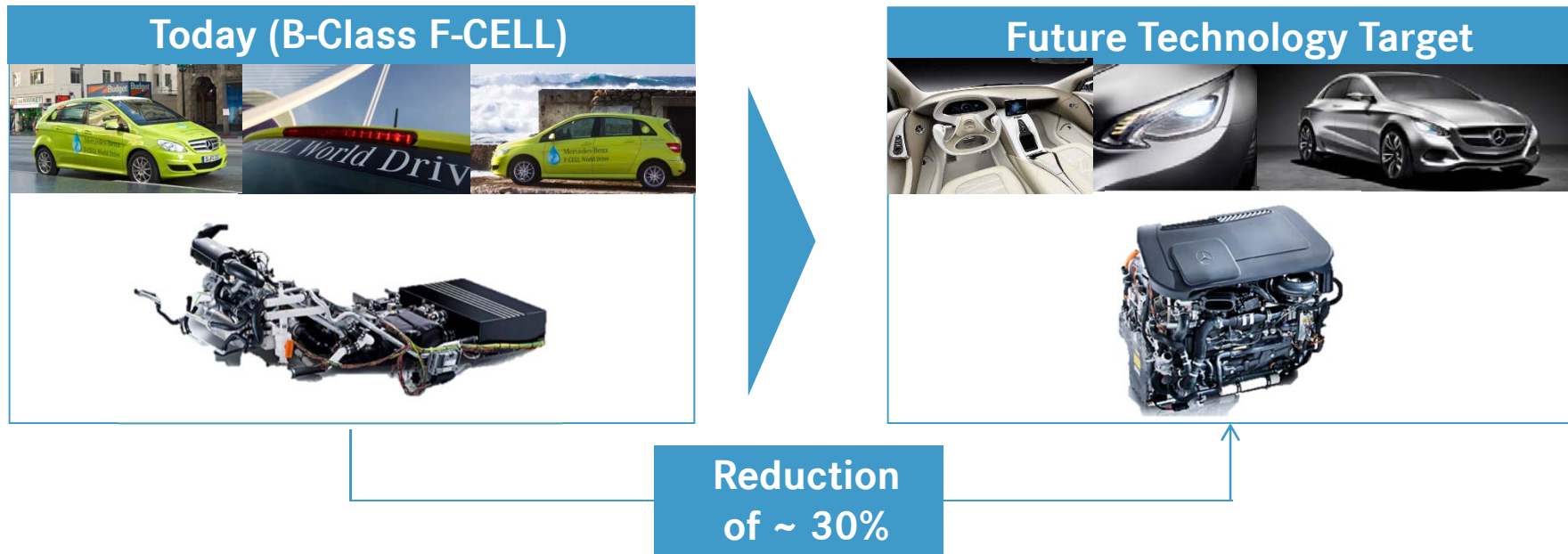
- Production start under series conditions since end of 2007
- World tour during F-CELL World Drive 2011
- Cooperation of Daimler, Nissan and Ford provides for launch of first competitive electric vehicle with fuel cell drive as of 2017

Energy from the air and hydrogen: The fuel cell principle



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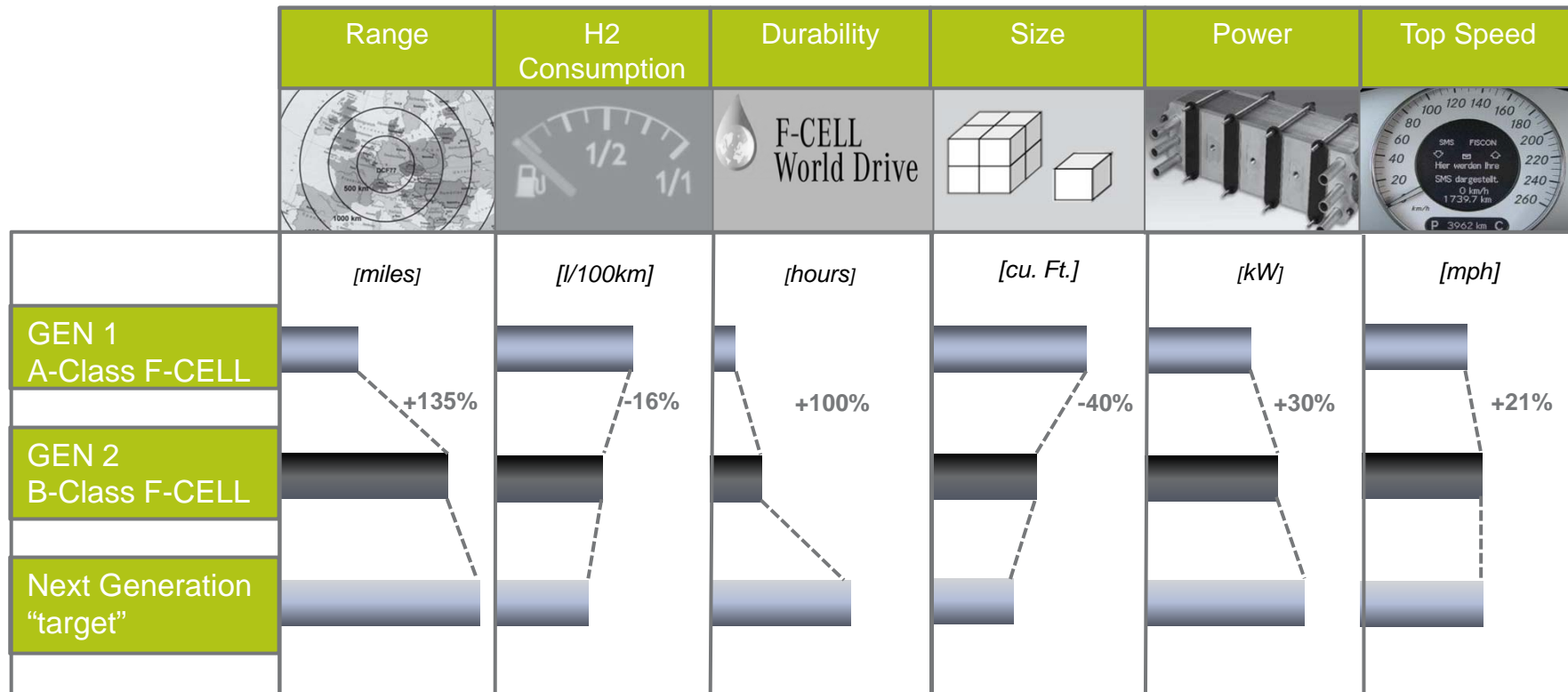
Packaging of Fuel Cell System



Through a further modularization of the fuel cell specific components, the packaging of future generations of FC vehicles will be simplified.

→ Significantly smaller dimensions will allow a accommodation in the engine compartment of a conventional vehicle.

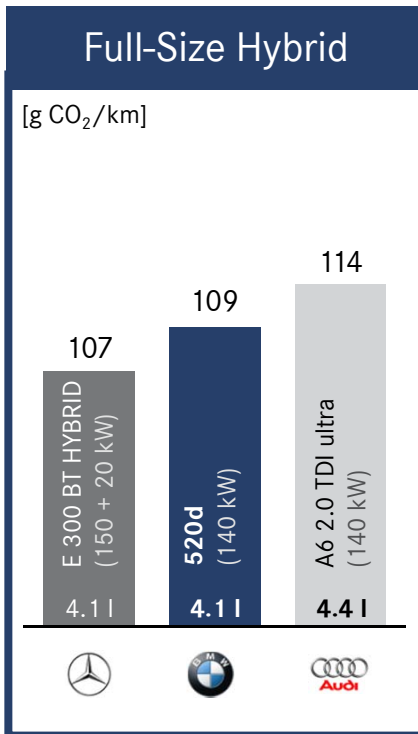
Technical Advancements of Daimler's Fuel Cell Vehicles



From generation to generation great technical improvements in numerous technical areas.

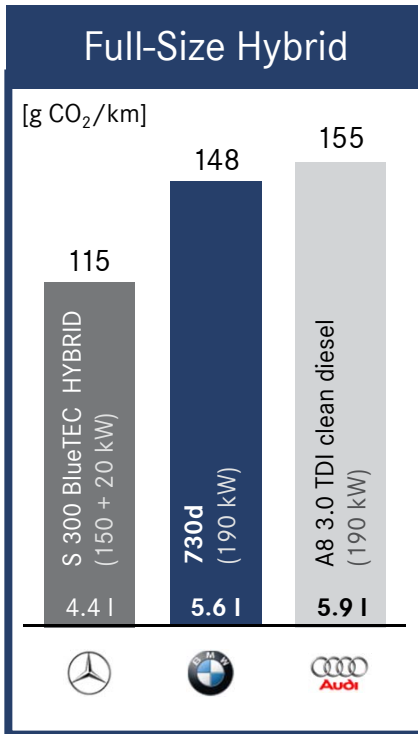
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The world's most economical executive class car without any compromises in cargo capacity!



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The world's most economical luxury-class model without any compromises in cargo capacity!

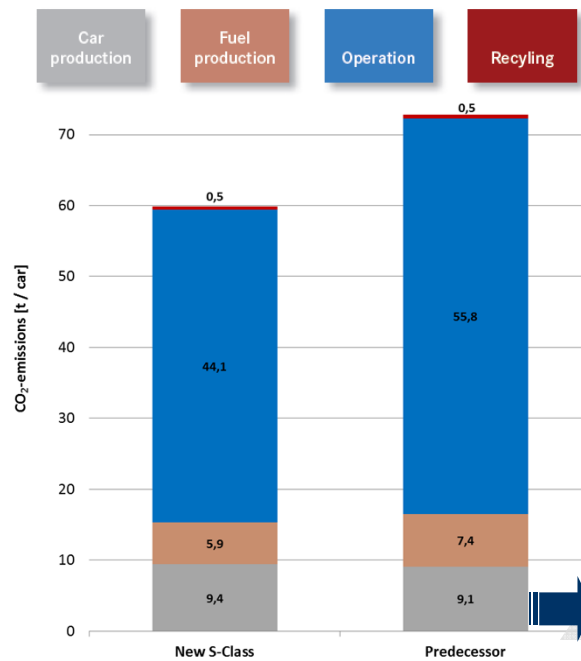


Environmental balance new S-Class

S400 HYBRID compared to predecessor



New S-Class S 400 HYBRID: 147 g CO₂/km
 Predecessor S 400 HYBRID: 186 g CO₂/km



CO₂ - emissions: Cradle to Gate



20 %

Production process
 Daimler & Tier1
 Scope 1/2 emissions*



80 %

Material production
 metals, polymers, etc.

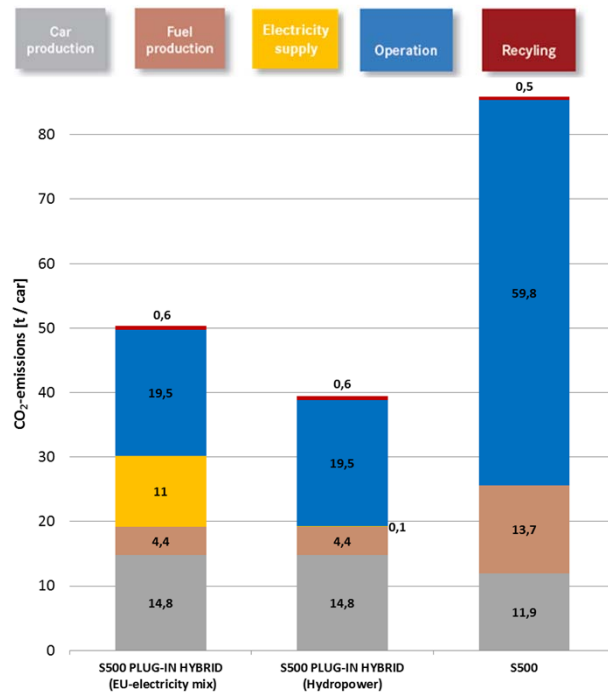


* See Daimler Sustainability report

Over the entire life cycle the new S 400 HYBRID emits 18 % less CO₂ emissions than the predecessor. Approximately 15% are generated by the vehicle production and 85% during vehicle usage.

Environmental balance new S-Class PLUG-IN HYBRID

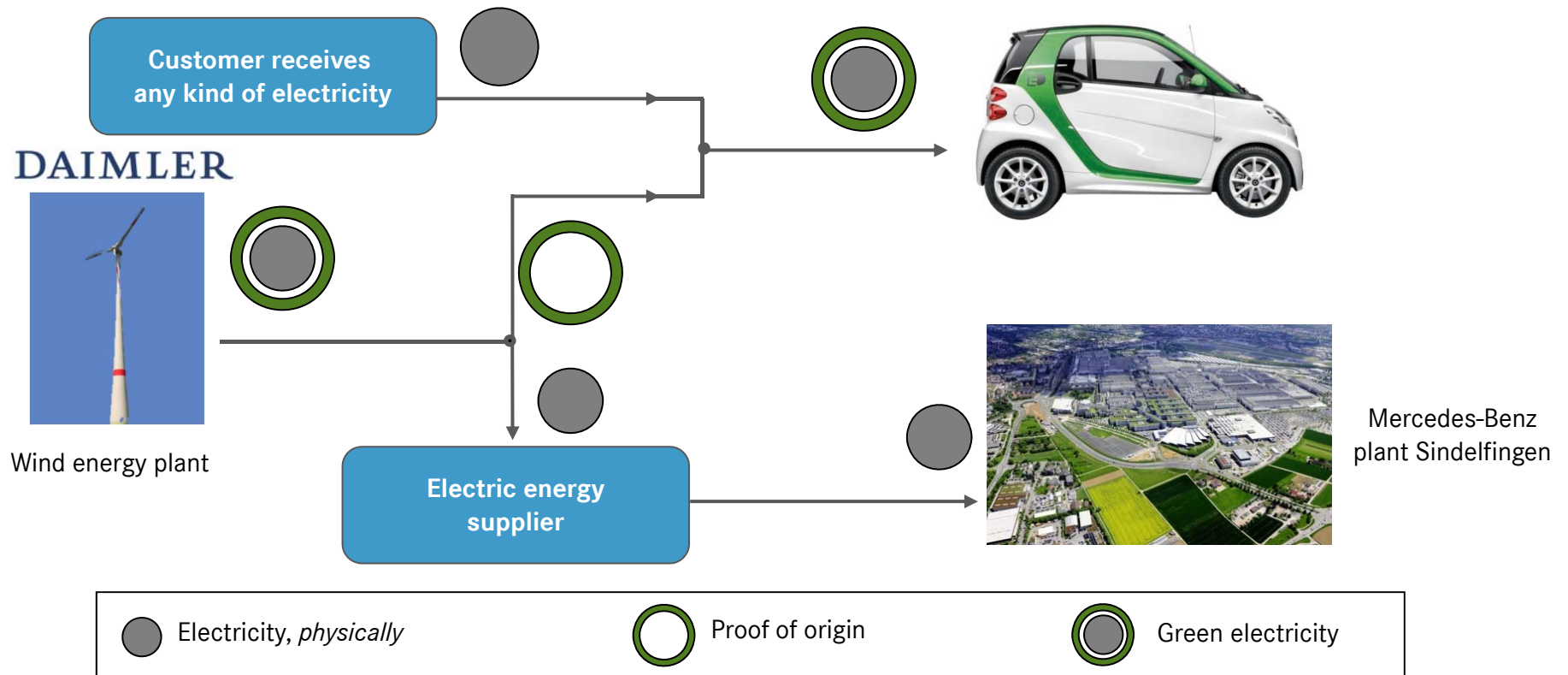
S500 PLUG-IN HYBRID compared to S500



S 500 PLUG-IN HYBRID: 65 g CO₂/km
 S 500: 199 g CO₂/km

Depending on the electricity supply the new S-Class PLUG-IN HYBRID emits 39 to 50 tons of CO₂- emissions over the entire lifecycle, which corresponds to a reduction up to 54 percent on the S500.

Electric mobility - Provision of electricity from renewable energy sources



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Our road to sustainable mobility

High-Tech
combustion engines



A 180 CDI BE Edition

92 gCO₂/km

Hybridization



S 500 PLUG-IN HYBRID

69 gCO₂/km

Emission-free
driving (Battery or fuel cell)



B-Class Electric Drive

0 gCO₂/km



Actros

26 gCO₂/tons per kilometer



Citaro G BlueTec HYBRID

Roadshow **20** gCO₂/km per passenger



Fuso Canter E-CELL

0 gCO₂/km

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Environmental Due Diligence has become a regular part of internal Daimler management processes

➔ **Goal:** Provision and aggregation of information to achieve transparency of risks and hazards

Areas of application:

1. Internal Risk Management

German legislation (KonTraG, AktG) requires the establishment of a company-wide risk assessment system

2. M&A Transactions

Differentiation in

- **Commercial** (Position in market and competition)
- **Technical** (Analysis of products and production)
- **Financial** (Analysis of finances and taxation)
- **Legal** (Analysis of legal situation)
- **Environmental** (Environmental risk assessment)

3. Safeguarding of Investments

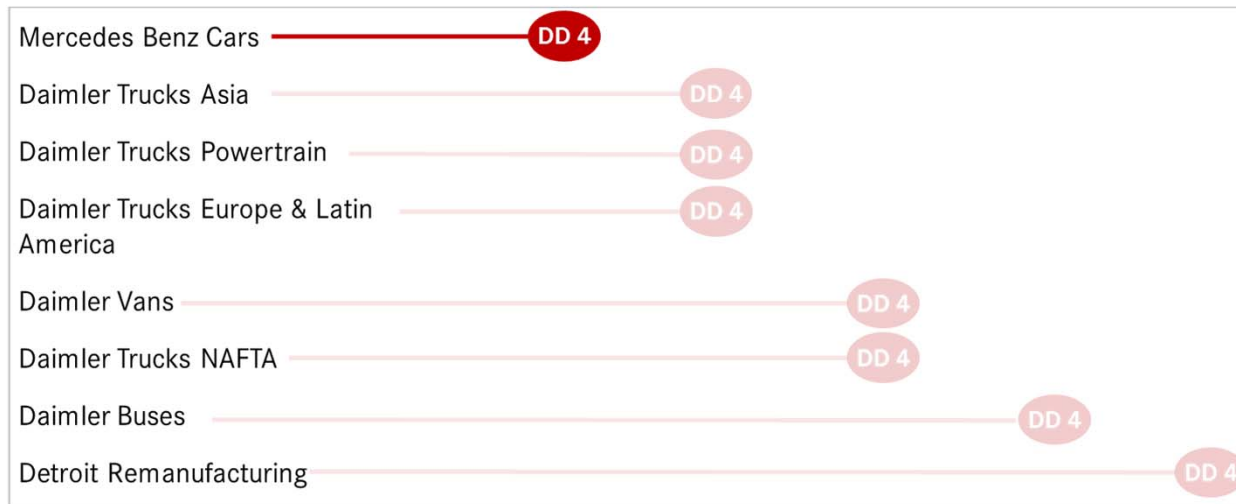
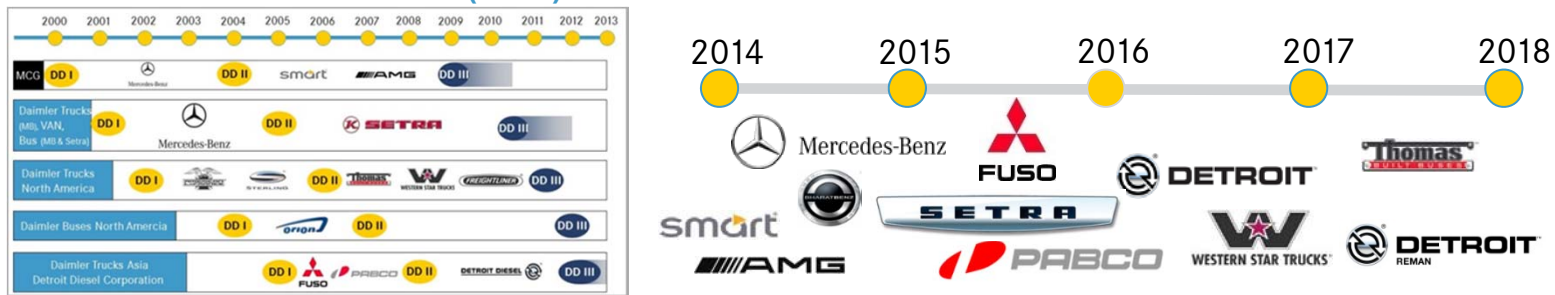
Safeguarding of capital investments in conflict regions by German Federal Guarantees

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Kick off Due Diligence **DD 4** Prozesses in 2014

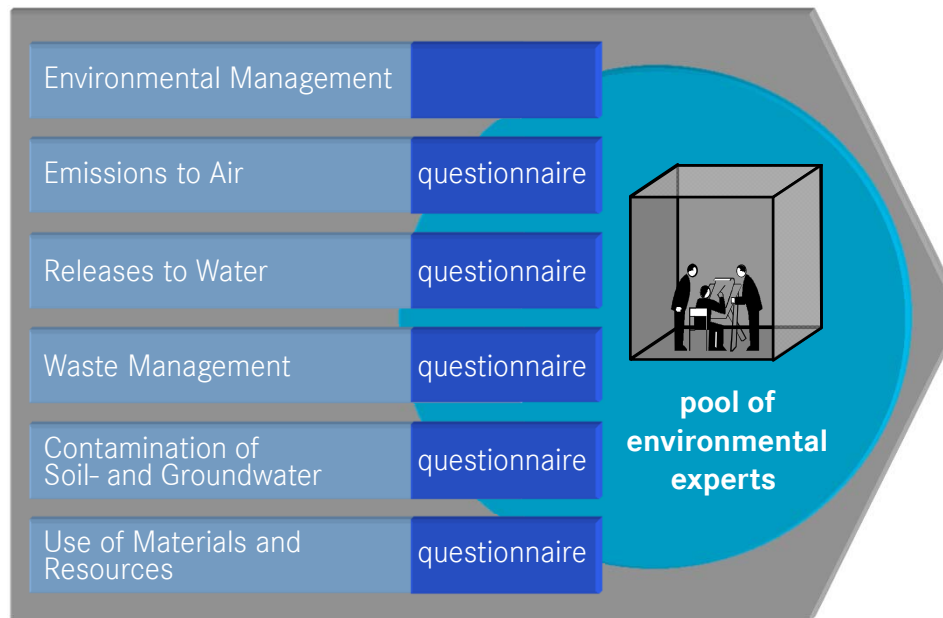
183 internal and 60 external (M&A) sites evaluated since 2000



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During a due diligence process several environmental areas are assessed



A05 Enforcement of Soil/Groundwater Redevelopment Measures		Page 1 of 2			
A04 Facilities and Structures		Page 1 of 1			
A03 Prior Utilisation of the Manufacturing Site		Page 1 of 1			
A02 Proofs and Documentation		Page 1 of 1			
A01 Known Soil and Groundwater Contamination Incidents		Page 1 of 1			
		Points	E ³	G	N
1	Is there any knowledge about contaminations on the site area and its immediate neighborhood and how has it been dealt with?	No, area has been examined but nothing was revealed 10 Yes, and redevelopment has been conducted 8 Yes, redevelopment is in the process 4 Yes, examination is in the process 2 Yes, but examinations on the extent have not been conducted yet 0		6	
2	Are soil and/or groundwater polluted? <i>If not examined yet, skip questions 3 to 5</i>	Neither 10 Only soil 5 Soil and groundwater are affected 0 Not examined yet 0		10	
3	How many singular locations of soil and/or groundwater contamination have been identified?	Number of locations per 10000 m ² : <0,01 10 <0,025 8 <0,05 6 <0,075 4 <0,1 2 >0,1 0		4	
4	Location of the major contaminated locations?	None identified 10 Area with groundwater affluent towards the site 8 Central area of the manufacturing site 4 Area with groundwater draining off the site 0		6	
5	Have those locations been reported to the authorities?	No, since none identified 10 Authorities are informed 7 Authorities are partly informed 3 Authorities are not informed 0		4	
		A01 max. performance value: 300 Points			

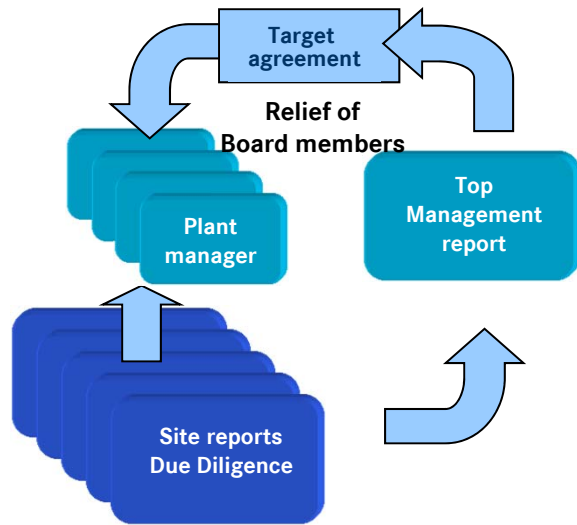
*E=Degree of Accomplishment; G=Factor of Significance;
N=ExG=Performance Value

Page 1

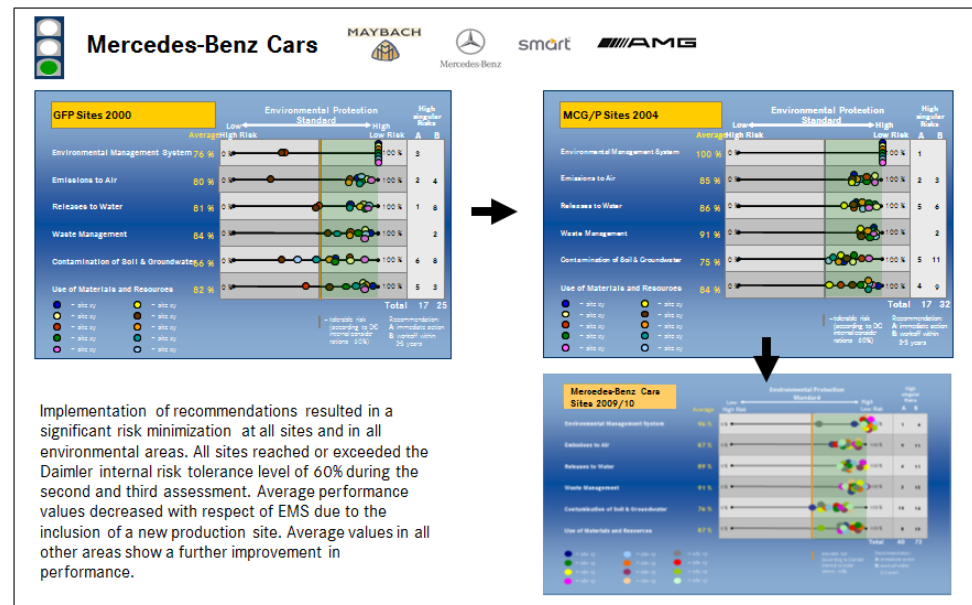
Dr. Schwarz / Dr. Esker
esker@esker.de / JA_Soil.xls

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A comprehensive 'Interne Due Diligence of the BU is submitted to the Top Management

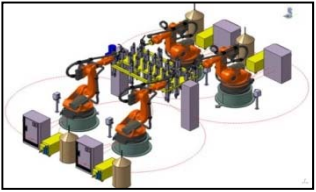
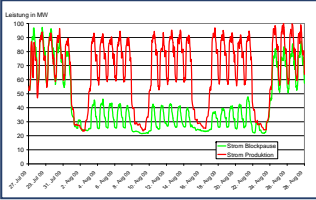

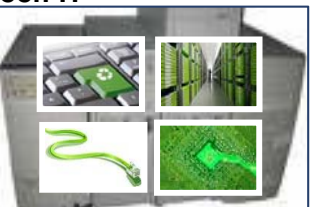
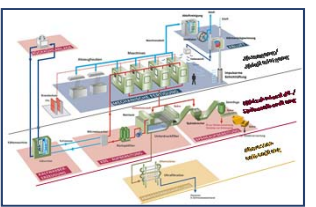



➔ Confirmation of Top Managements **comits the plant manager** to implement recommendations



➔ Significant improvement of environmental performance, Significant risk reduction since 2000 over 2004 and 2009/10

TOP-Measures CO₂-Reduction

<p>1</p>	<p>power efficiency control</p> 	<ul style="list-style-type: none"> ▪ Shut down of roboter and laser equipement ▪ Utilizing of standby and load level ▪ Vision of intelligent factory <p>- 3.000 MWh/a</p>	<p>4</p>	<p>Energy efficient plasn operation</p> 	<ul style="list-style-type: none"> ▪ Optimizing shut down times ▪ Reducing base loads ▪ Energy consumption as one key production indicator
<p>2</p>	<p>Simulation Painting Prozess</p> 	<ul style="list-style-type: none"> ▪ Increase of process windows ▪ Reduction of rate of descent ▪ Optimizing process control <p>- 150.000 MWh/a</p>	<p>5</p>	<p>green IT</p> 	<ul style="list-style-type: none"> ▪ Project <i>Optiprint</i> ▪ Procurement of energy efficient hardware ▪ Utilizing „wake on lan“ for maintainace and updates ▪ Automated shut dwon
<p>3</p>	<p>Environmental engineering powertrain plants</p> 	<ul style="list-style-type: none"> ▪ Increase of cooling liquid temperature from 22°C ro 28°C ▪ Redcution process air flow ▪ Optimizing washing machine <p>- 165.000 MWh/a</p>	<p>6</p>	<p>Extension of own power plant operations</p> 	<ul style="list-style-type: none"> ▪ In depth analysls of site specific energy demands and generating options ▪ Renewable Energy

CO₂-Ziel Daimler-Targest in EU Business Units

	1992-1994 t CO ₂ /a	2020 t CO ₂ /a	Status 2013 t CO ₂ /a
Daimler	2.701.692	2.161.353	2.540.106^c
MBC	1.447.278	1.157.823	1.273.196
Trucks	563.927 ^a	451.142 ^a	604.945 ^a
Vans	156.744	125.395	182.032
Buses	80.334 ^b	64.267 ^b	65.494 ^b
Corporate Functions	453.408	362.726	292.550

-20%

- Clear assigned targets on BU level
- Major production volume increase (doubling in all BUs, except Buses, more than tripling in Vans)

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Significant environmental protection goals and fields of action are positioned in Daimler Sustainability Program

	Climate protection & energy	Air quality & health	Resource protection	
Research and Development	Reduction CO ₂ -emissions vehicle	-30% 2007 - 2016	Pre-discharge Euro 6 Norm vehicle	
	Reduction CO ₂ -emissions light commercial vehicle	-10% 2010 - 2014	Introduction EEV engines for all transporters	
	Reduction fuel cons. light commercial vehicle	-20% 2005 - 2020	Type approval Euro 6 commercial vehicle	
Production, use, recovery	Reduction specific CO ₂ -emissions plant	-20% 2007 - 2015	100% achieved	
	Reduction absolute CO ₂ -emissions plants (EU)	-20% 1990 - 2020		
	Reduction of CO ₂ - und NO _x -emissions throughout the whole Life Cycle of a new vehicle generation.		10-20% vs. predecessor	Higher utilization car2go
				Construction of H ₂ -filling stations
			Recovery rate end-of-life vehicle	

Ensure the worldwide legal regulations as the basis of our actions.