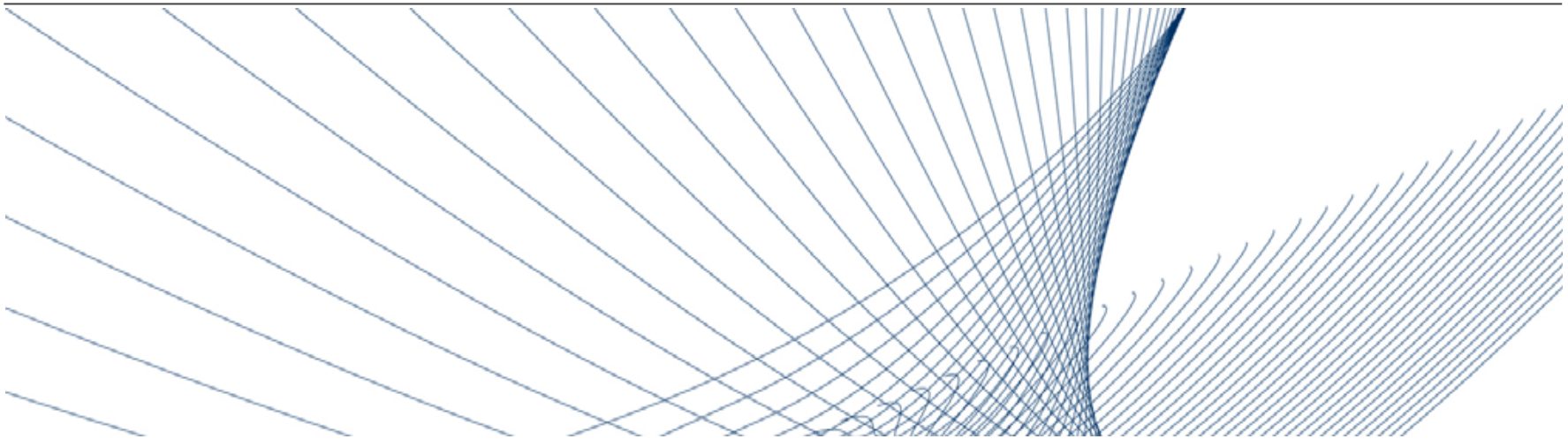
VOLKSWAGEN

GROUP SOUTH AFRICA



Item: Green Machine

Topic: Threats and Opportunities for SA Automotive Sector

Presenter: D.C. Powels

Date: 25 August 2011

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How, when and on what Scale will this Explosion present Danger to the Automotive Component and related Industry?

- A very weighted and difficult to answer question
- The only certainty is change
- The need for more environmental vehicles can not be disputed
  - The customer is demanding it
  - Good corporate citizens will respond
  - A holistic approach is required
- Trends need to be anticipated by both the industry and suppliers
- The industry needs suppliers to produce vehicles
- Therefore suppliers must respond
- Current technology will continue to account for the majority of vehicles sold for at least another 10 years
- So what are Global customers saying?

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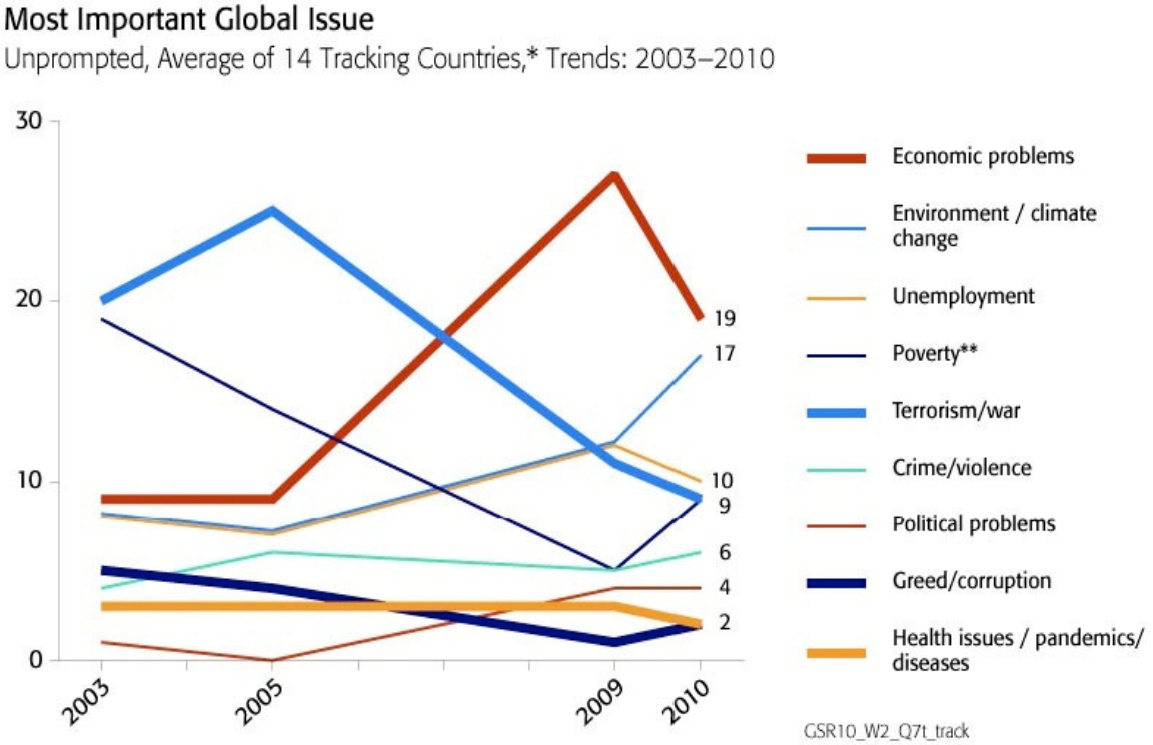
Environmental issues are becoming more important



Asked of half of sample in 2009 and 2010
*Tracking countries include Brazil, Canada, China, Germany, India, Indonesia, Italy, Mexico, Nigeria, Russia, Spain, Turkey, the UK, and the USA.
**Includes "Poverty/homelessness" and "Gap between rich and poor."

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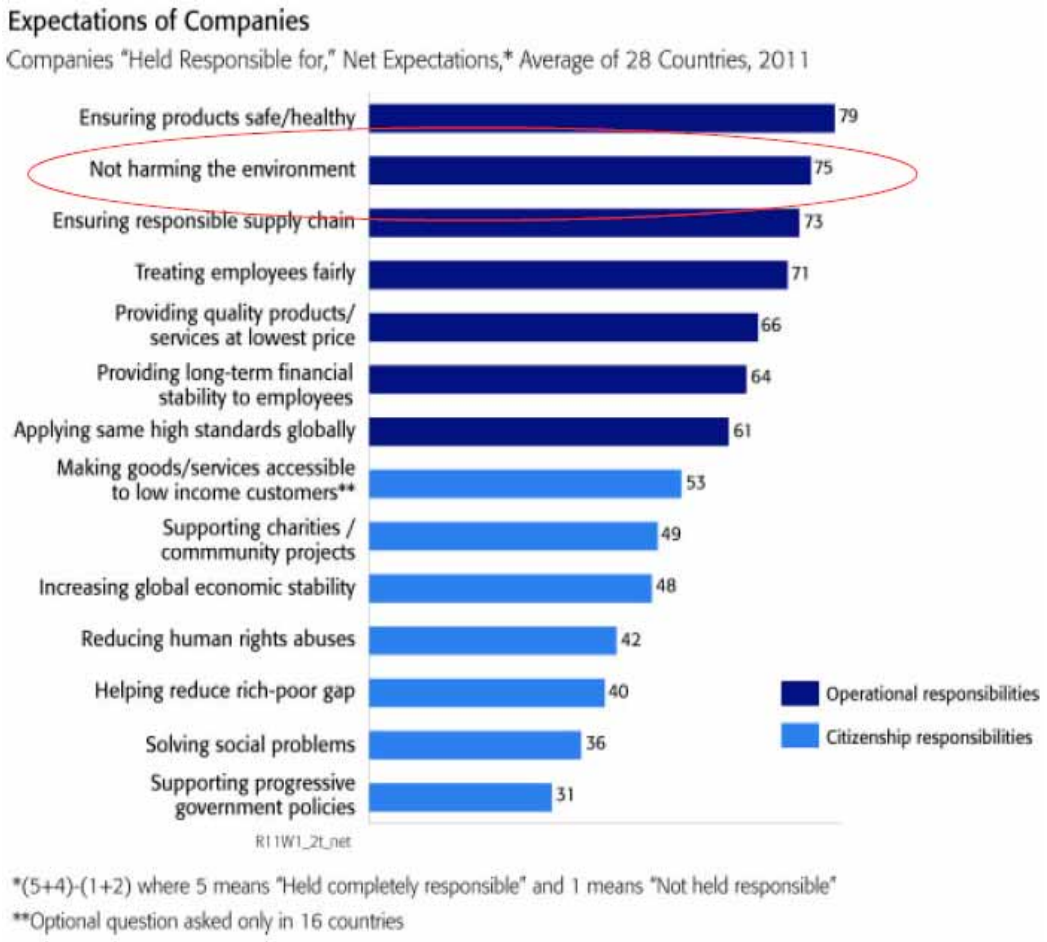
Companies are expected to respond the environmental issues



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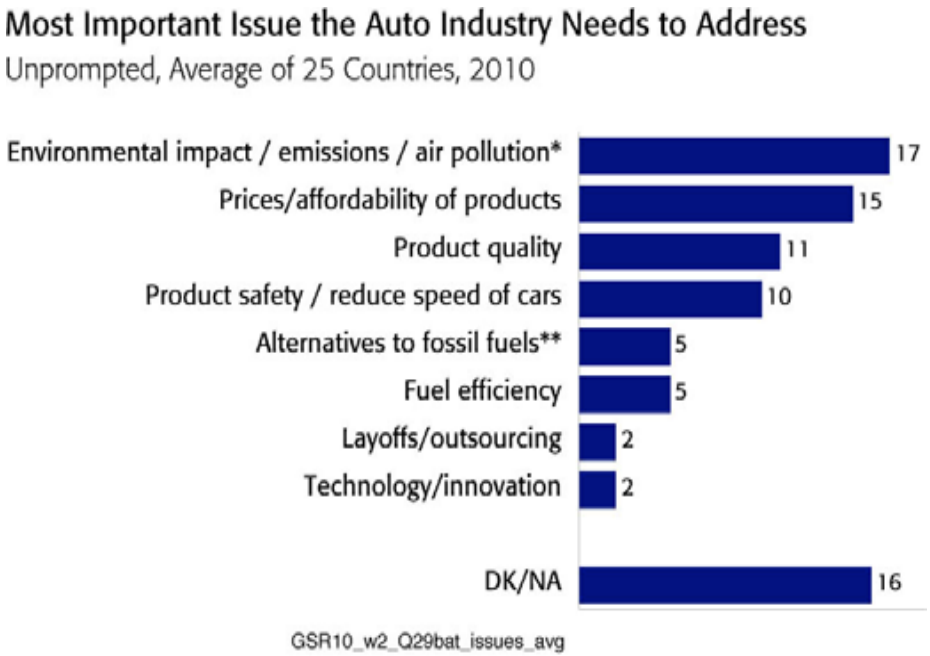
Customers believe that responding to Environmental issues is the most important issue for the Auto Industry



*Also includes "Climate change"
**Also includes "Investing in alternative fuels/energy sources"
Asked of half of sample

Prognosis

- Thus if a manufacturer or a supplier wants to survive they have to respond
- This should be seen as a opportunity not a threat
- The change is happening now
- Suppliers not able to adapt to manufacturers needs are at risk of becoming redundant
- Less impact for local suppliers
- Latest technology vehicles are imported including Hybrid's and Blue cars
- This trend is likely to continue
- Local manufactures will continue to produce mass appeal vehicles in the medium term
- Thus component suppliers will follow this lead but need to adapt
- This is not new and manufacturers will continue to set the agenda

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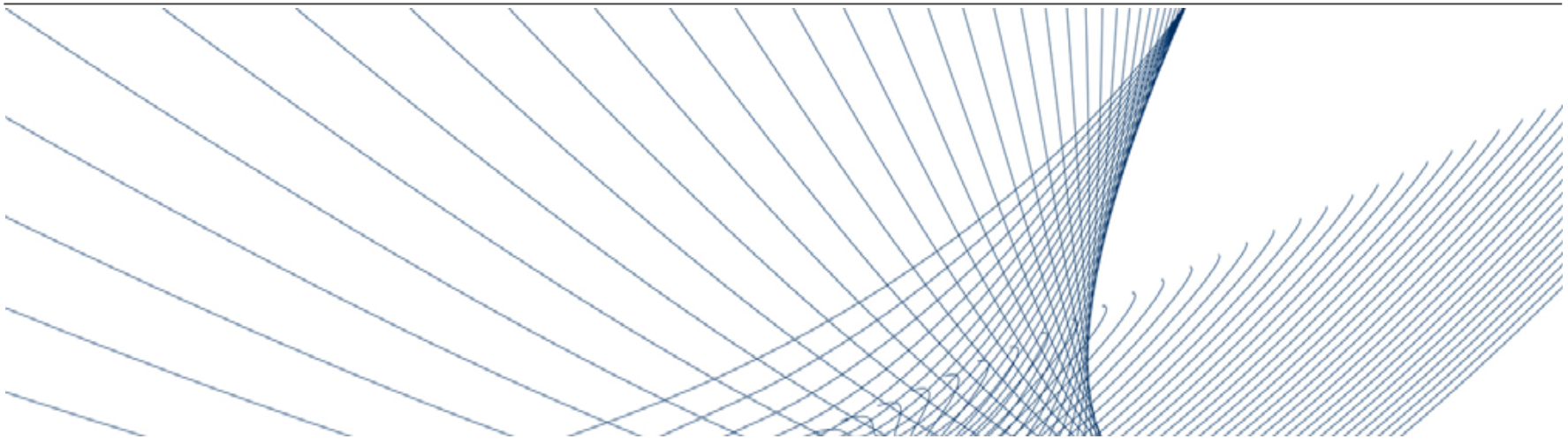

Item: Green Machine

Topic: Bluemotion & Volkswagen Response to the Green Economy

Presenter: D.C. Powels

Date: 25 August 2011

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- **Volkswagen Brand target : greenest automaker globally**
- **Think Blue : over-arching strategy to leverage enviro-friendly technologies**
- **Global campaign**
  - **Align VW brand with environmental responsibility**
  - **Harmonizing individual mobility and sustainable action**
  - **Roll-out in 30 markets globally**

Think Blue.

The attitude, which goes beyond Technologies & Products.

Think Blue

Think BlueFactory
PRODUCTION

PRODUCT

BLUEMOTION

ENVIRONMENT

BLUE ENVIRONMENT

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Product Initiative

BlueMotion

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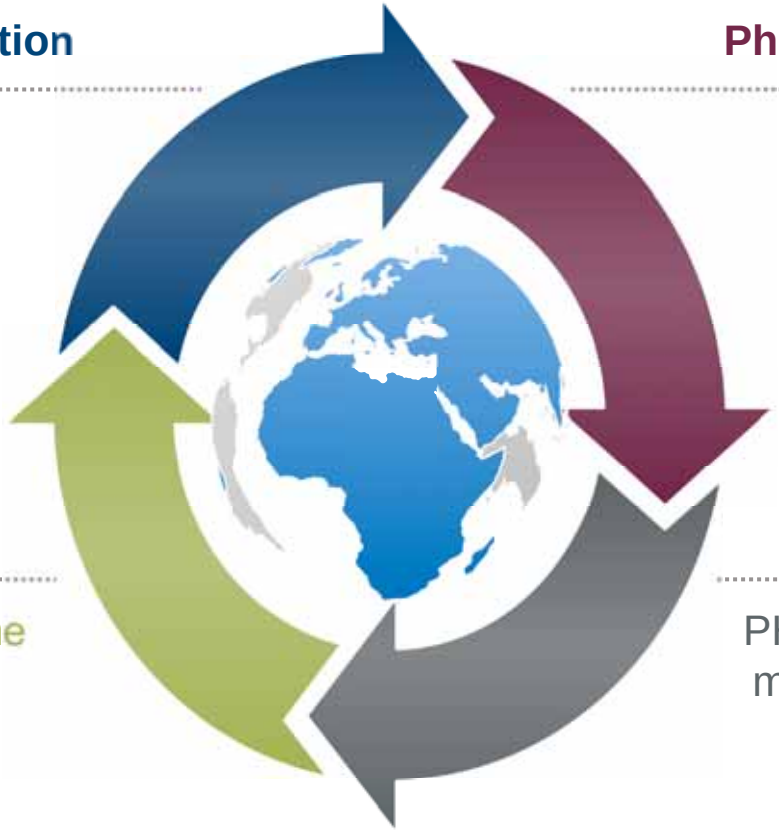
Overview of Alternative Mobility Strategy VW Group

Phase 1: VW BlueMotion

Lowered consumption and CO_2-emission with established technologies.

Starting 2010



Phase 2: Hybrid Mobility

Hybrid Mobility is a bridge technology towards Electric Mobility.

Starting 2011

Phase 3: PHEV Mobility

PHEVs will penetrate the market faster than BEVs because of a higher customer acceptance.

Starting 2014

Phase 4: Electric Mobility

Maximum synergy in the VW Group by using modules in MQB/MLB and MSB.

Starting 2012

Volkswagen BlueMotion

VW BlueMotion vehicles…

- are the key milestones to Volkswagens new sustainability initiative,
- combine fuel-efficient technology with a dynamic drive experience and
- respond to rising fuel prices and increasing demands on the environmental characteristics of vehicles.

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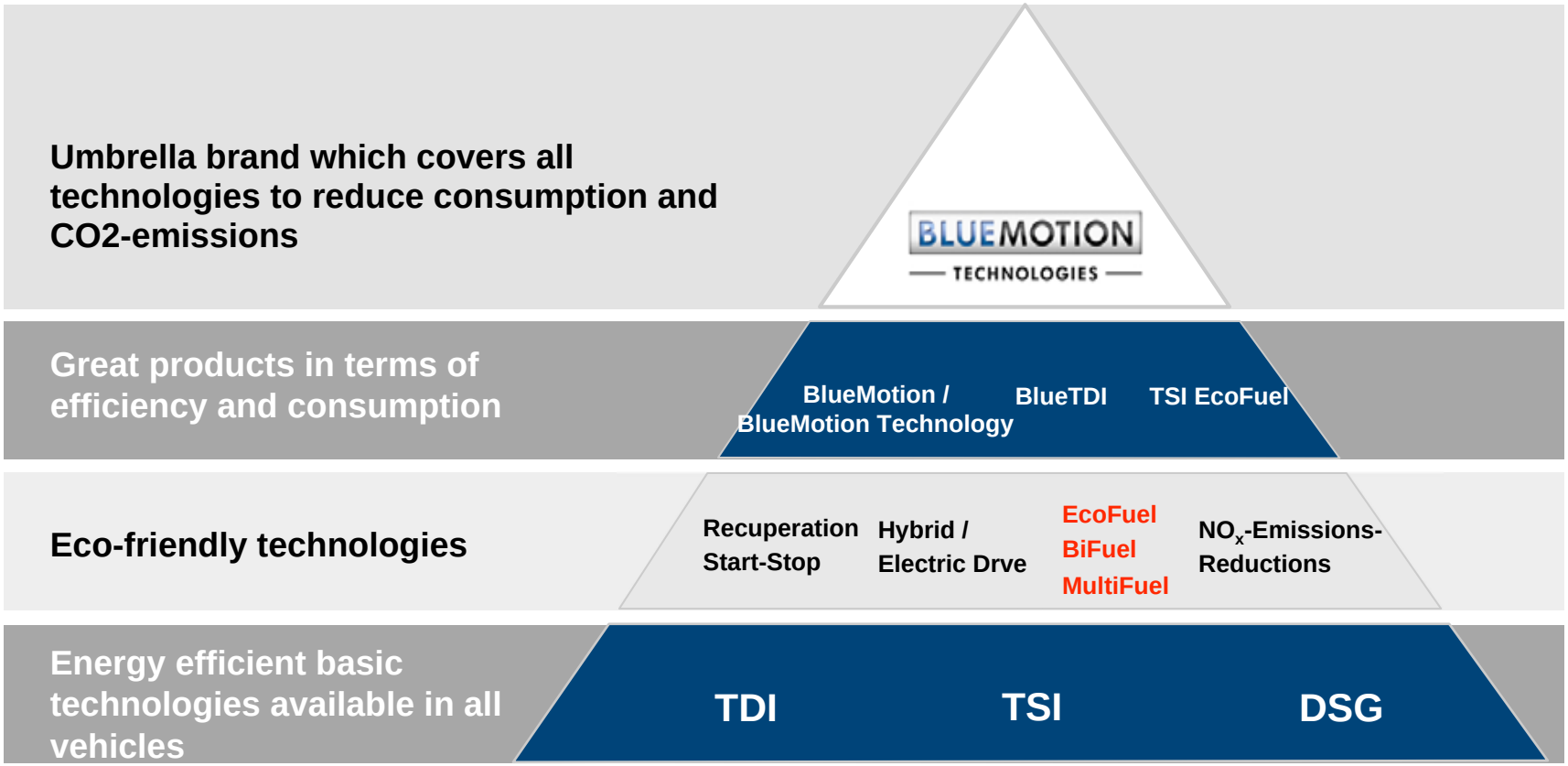
Overview of VW BlueMotion Technologies



Source: K-EFUP

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Downsizing TDI/TSI Engines

TSI: Twin Charged Petrol Engines

Direct Injection combined with Super- and Turbocharger

Maximum Performance with minimal fuel consumption

Performance: 1.4 TSI up to 132 kW

TDI

Turbocharged common rail diesel engines

Downsizing:

- 2.0l Twin charged with 132 kW/400 Nm for Amarok and T5-Multivan
- 1.2l and 1.6l TDi with up to 77kW for VW Polo

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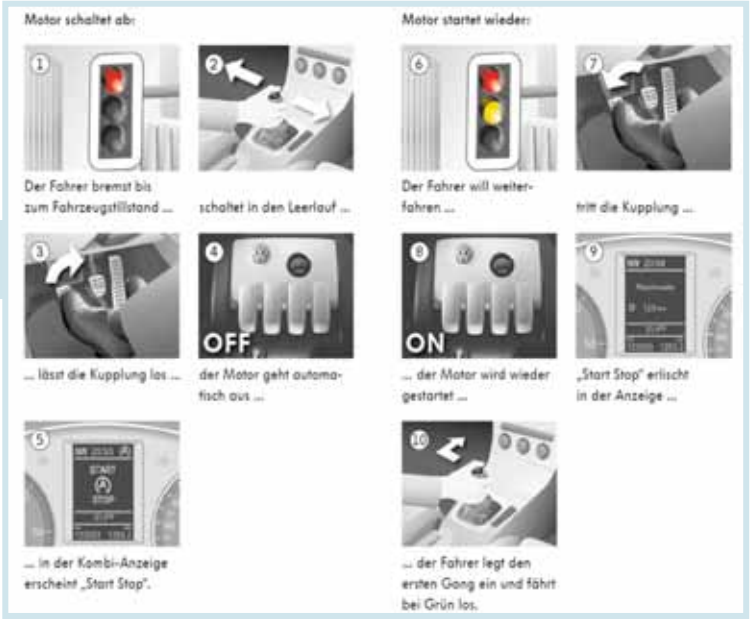
BlueMotion

Fuel consumption optimisation technology



- Start-Stop-System
- Lower Idling RPMs
- Display with gear change recommendation
- Longer gear ratios
- Reduced rolling resistance tyres
- Specific Cw- under body covers
- Aerodynamically optimised front bumper
- Ride height reduced by 15 mm
- Recuperation of Brake Energy
- Closed front radiator cooling grill
- Friction reduced drive shafts

Typical fuel consumption benefit: -8.7% (combined cycle)

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Hybrid

Combining internal combustion engines with E-Motors

Touareg Hybrid

First VW hybrid production model

Engines:

Petrol: 3.0l FSI V6, 245 kW, 440 Nm

Electrical: 34.3 kW

Total: 279 kW, 580 Nm

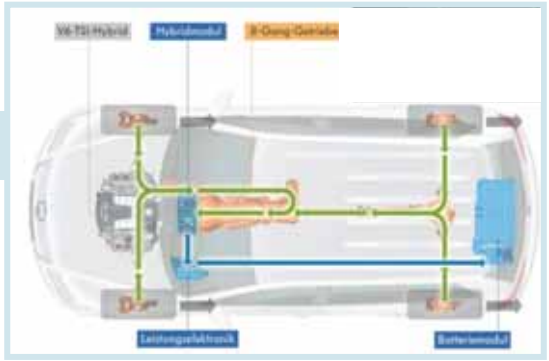
Battery: Nickel - Metal hybride, 1.73 kWh

(behind rear axle)

Combined fuel consumption 8.2l/100km

(Reference: Touareg V6 FSI Bluemotion, 206 kW: 9.9l/100km)

Recuperation of Brake Energy



Entering Electrification

Touareg Hybrid

New Jetta Hybrid

e-up!

Series 2011 2012 2013

We will expand electrification

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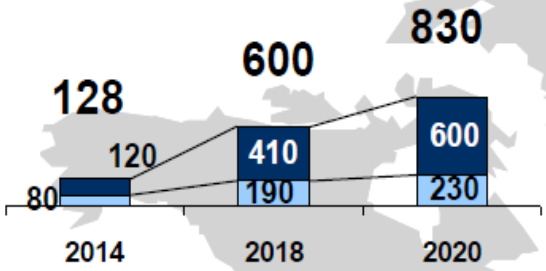
AKTIENGESELLSCHAFT

E-Market Volume Forecast

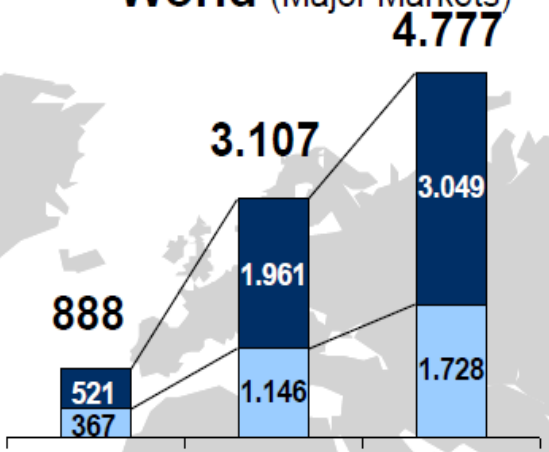
[Thousand vehicles]

USA

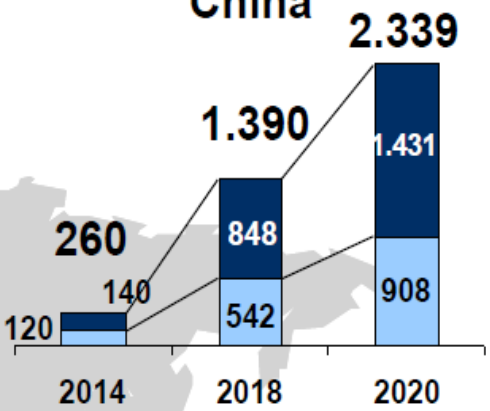


- Government directive to reduce oil dependency
- Large Vehicle market best suited to PHEV

World (Major Markets)

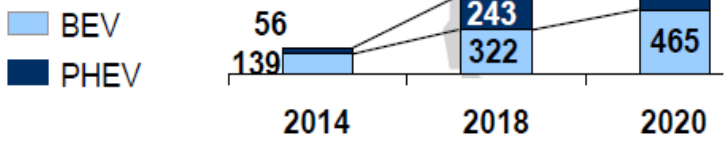


China



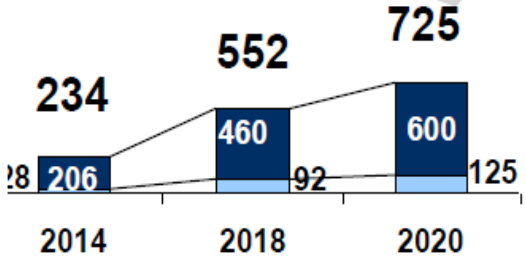
- Government desire to lead E-Mobility technology globally
- Powerful legislative tools eg city restrictions
- Single vehicle households, fleets etc favour PHEV

EU*



- Government directive to improve Environmental impact
- Mega cities, smaller fleet favours BEV

Japan

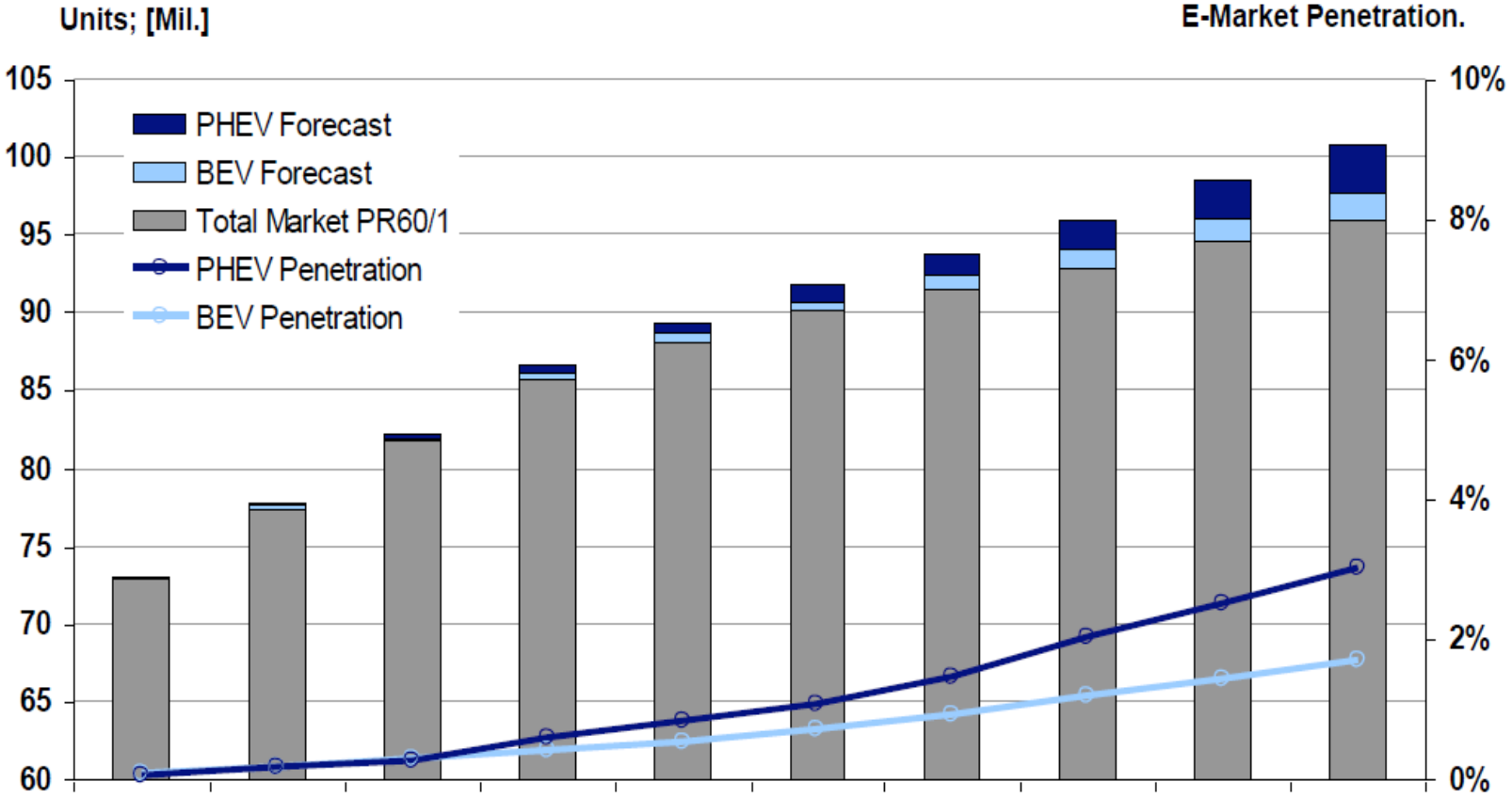


- High Tech consumer already makes Prius top seller
- Single vehicle households favour PHEV, home charging difficult

K-VS-V, July 5 2011

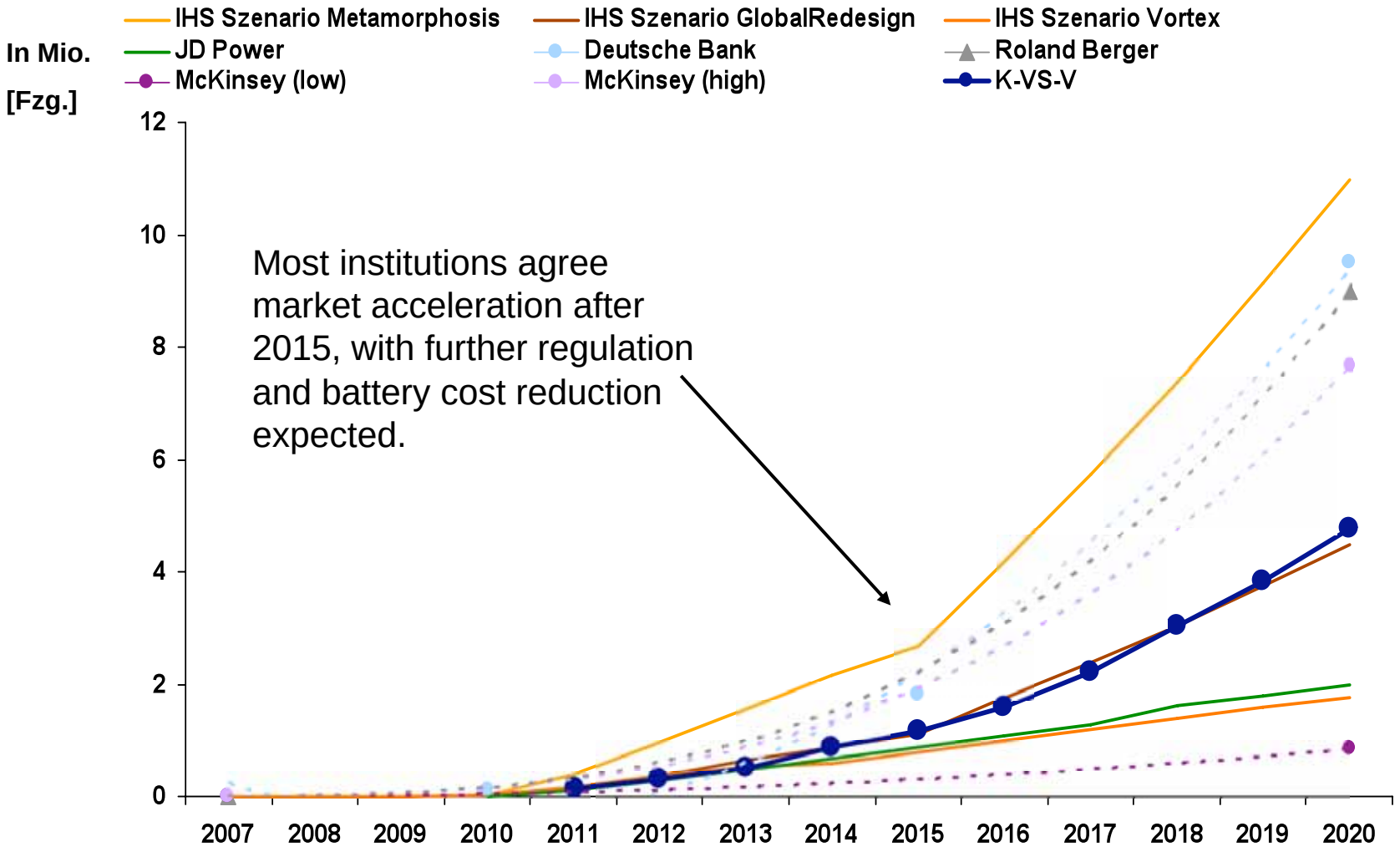
*EU Selected Markets = Austria, Belgium, Denmark, Germany, France, Italy, Netherland, Spain, Portugal, UK

Global E-Market Forecast to PR60 Total Market



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Market PR60/1	73,056	77,731	82,250	86,653	89,379	91,769	93,840	96,036	98,594	100,759
PHEV Forecast	0,048	0,141	0,229	0,521	0,739	0,992	1,385	1,961	2,488	3,049
BEV Forecast	0,072	0,145	0,255	0,367	0,481	0,661	0,879	1,146	1,428	1,728
PHEV Penetration	0,1%	0,2%	0,3%	0,6%	0,8%	1,1%	1,5%	2,0%	2,5%	3,0%
BEV Penetration	0,1%	0,2%	0,3%	0,4%	0,5%	0,7%	0,9%	1,2%	1,4%	1,7%

BEV+PHEV – Global Forecast Range: External Institutions



- - - Interpolierung

*McKinsey mit Basis PR60/0

Blue E-Motion

Vehicle:

Basis VW Golf, 5 doors, 5-seats

Boot Volume 275l

Drive Train:

E-Motor: 85 kW / 270Nm

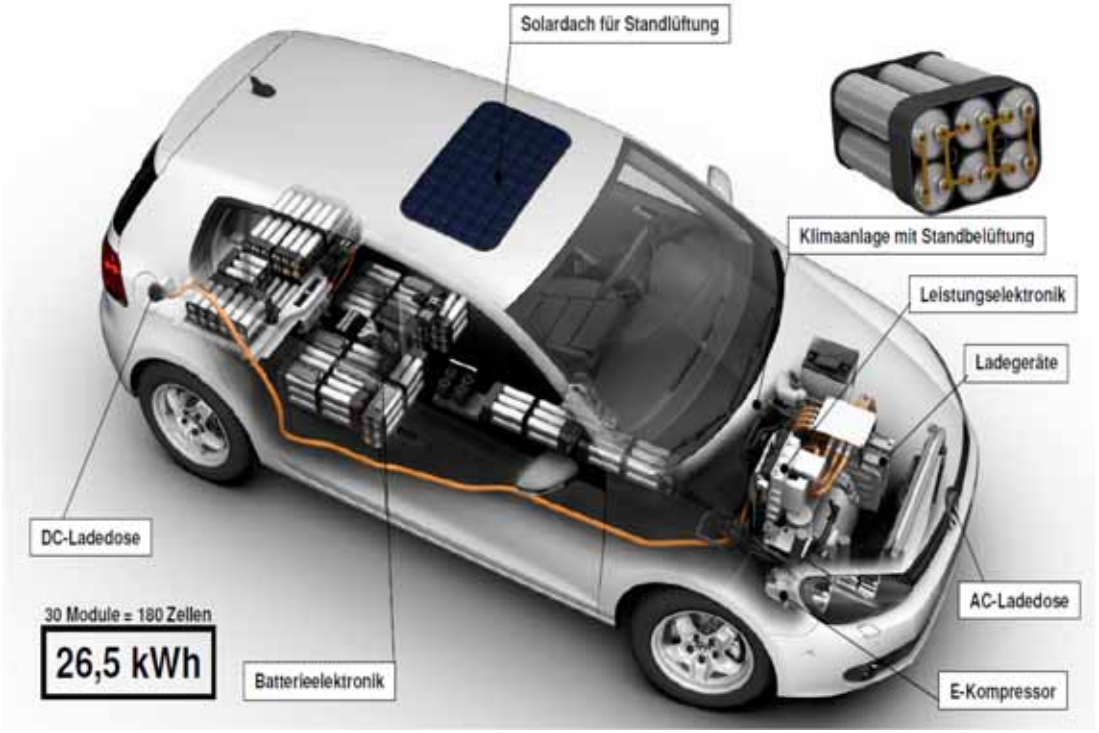
Battery Capacity: 26,5 kWh

Performance:

Vmax: 135 km/h

Acceleration 0-100km/h: 11,8 s

Range: 100 - 150 km



First fleet of 400 Vehicles deployed in 2011 (Europe, USA and China)

Compressed natural gas (CNG)

Fuel properties

•Cheaper than Diesel and LPG:

- CNG consumption is 10% less than petrol
- CNG is 22% cheaper than petrol
- Nett fuel cost saving is 30%

Available vehicles in the Group

•Passat TSI EcoFuel

•Touran TSI EcoFuel

•Caddy Ecofuel

BlueMotion in South Africa

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BlueMotion	BlueMotionTechnologies	Think Blue.
One product. One label.	Many products & technologies. One strategic umbrella brand.	Volkswagen's attitude in relation to ecological sustainability.
Polo BLUEMOTION 		Think Blue.
2010	2010	2010/ 2011
- Our answer to the newly aroused CO_2 debate and the Toyota Hybrid approach - BlueMotion became the most successful environmentally sustainable automobile label in Europe after its launch in 2008	- Increase of environmentally sustainable products & technologies (model range) - Clear communication of consumer benefits and orientation through one brand	- Improvement of BlueMotionTechnologies - Communication of more than just products and technologies - Gives the customer an overall impression of Volkswagen's ecological activities

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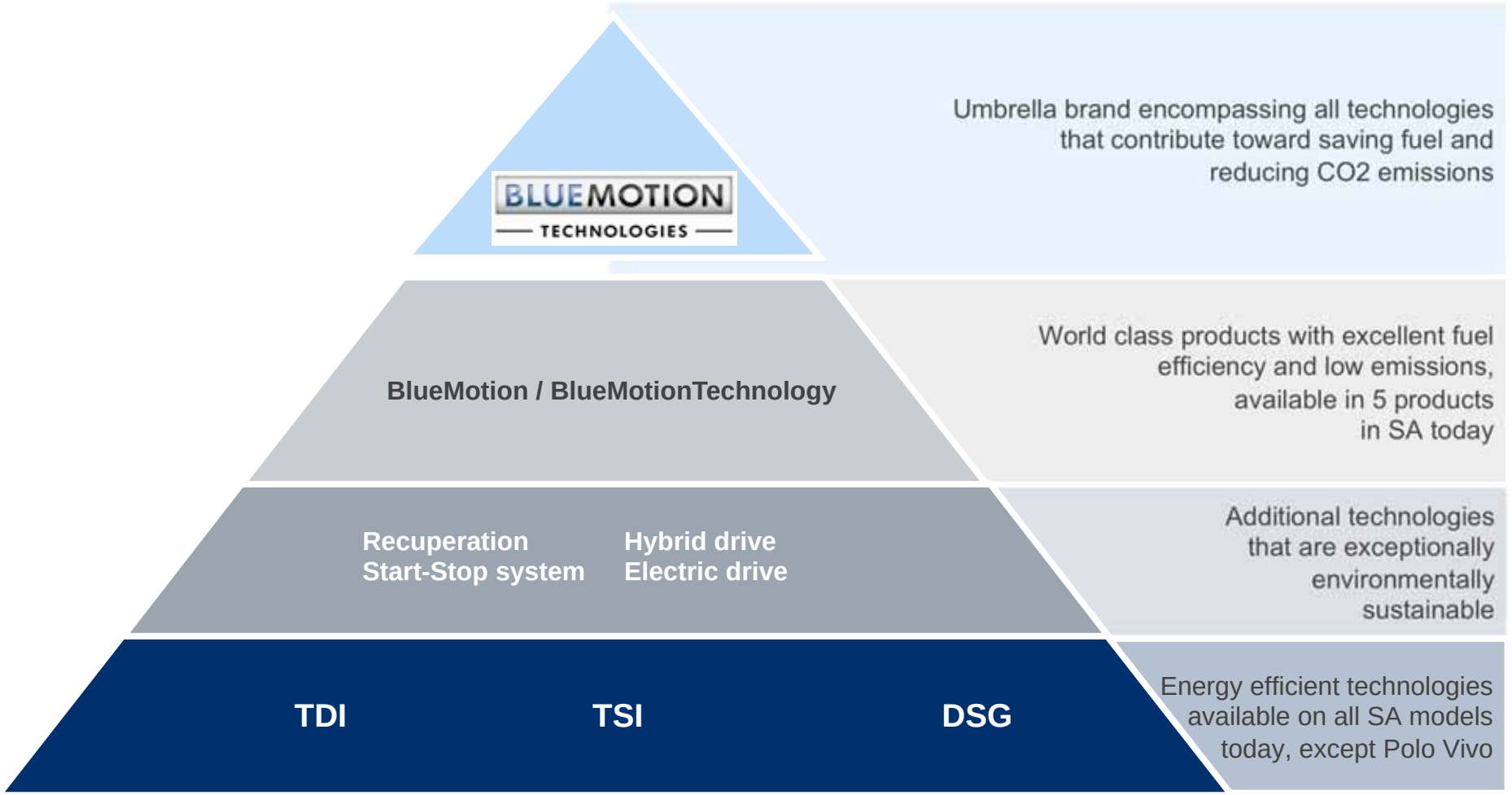
BlueMotion Technologies: the umbrella brand for environmentally compatible products



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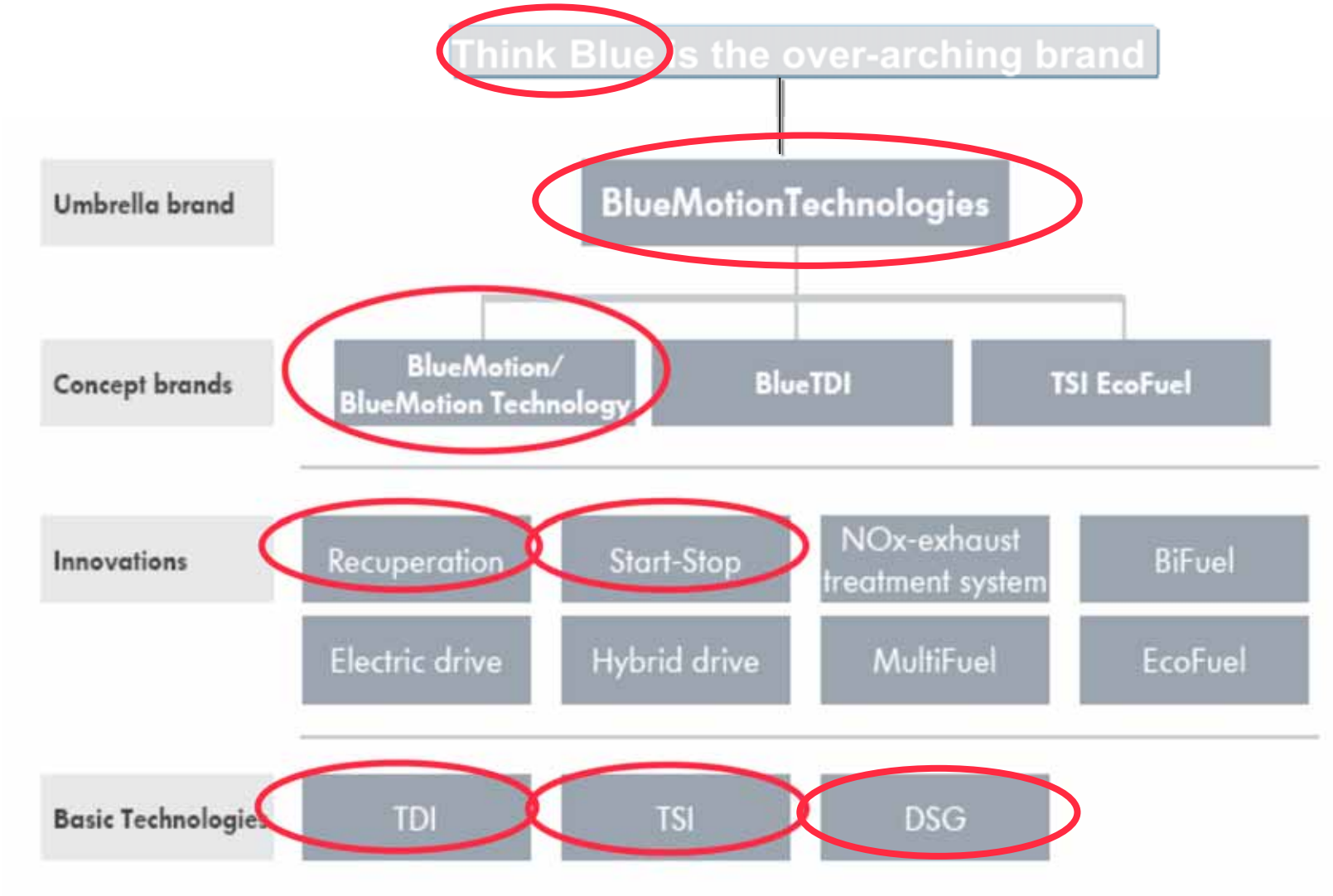
South African BlueMotion Product Offering



Think BlueFactory

Think Blue

Think BlueFactory
PRODUCTION

PRODUCT

BLUEMOTION

ENVIRONMENT

BLUE ENVIRONMENT

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Think BlueFactory

- **Vision -** to be a company with “meaning and impact in terms of environmental consciousness” and an industry leader in environmental responsibility.
- This is a journey….
- Introduce a holistic environmental initiative encompassing every element of VW business and ‘life cycle‘.
- Implement the Green Leaf Environmental Standard (GLES)
- The Plant will be measured against the following key elements:
  - Environmental responsibility – employee awareness/education/training
  - Green environmental procurement
  - Environmental Leadership/consciousness
  - Carbon footprint replacement – Uitenhage Plant
  - Water and energy efficiency programme
  - Waste management programme
  - Innovation – innovative systems and ideas
- **First Company** in the SA auto sector to pioneer an impartial environmental accreditation system as well as well as a holistic environmental approach

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Think BlueFactory Initiatives

- **Environmental Housekeeping**
  - Energy Consumption Monitoring
  - Waste Separation Management
- **Plant Initiatives**
  - New Paintshop
  - New Press Shop

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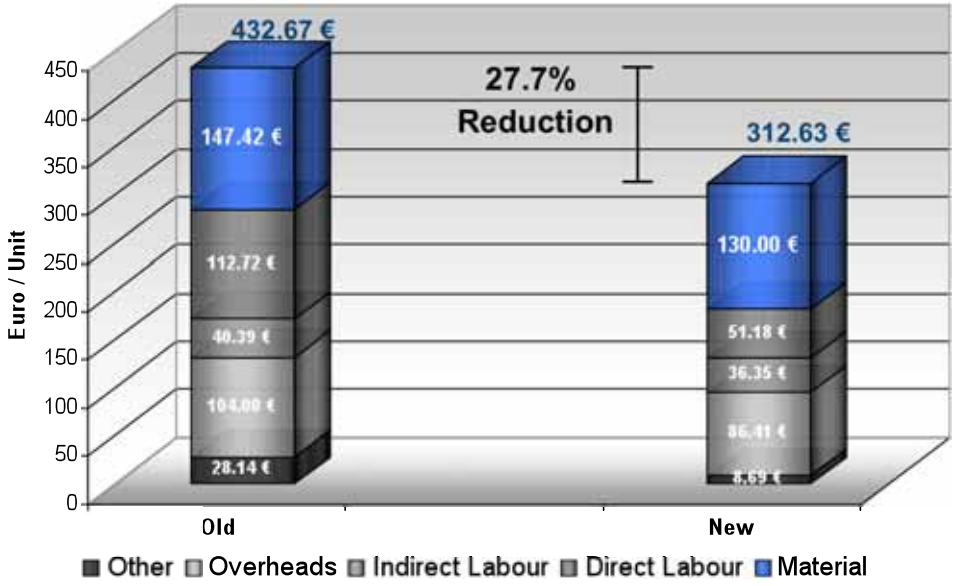
Introduction of New Water Based Paint Shop – ENVIRONMENTAL IMPACT

New Paint Shop – Total Plant Cost



Total Material Savings - 11.8 %

Pre-treatment & Electro Coating	**15.0%**
Sealer	**19.9%**
Paint	**10.3%**
Flushing Solvents	**9.9%**

- Conversion from ***Solvent Based*** to ***Water Based*** paint material.
- Reduced VOC's by 71% (Volatile Organic Compounds)
- Reduced material usage due to ***robotic application*** by 11.8% (Sealer & Paint)
- Reduced Energy consumption due to new ***energy efficient*** technologies by 14.1% (Heating & Cooling systems)
- Reduced Water consumption due to introduction of ***new technologies*** by 39%

Rand / € 10 : 1

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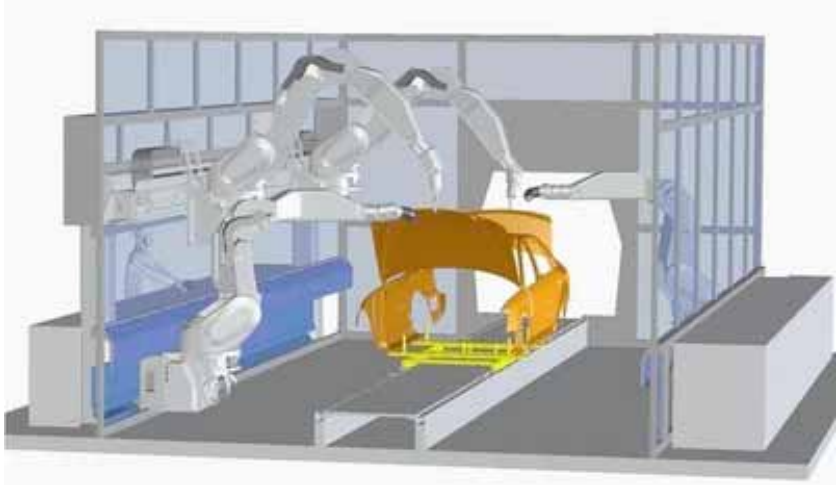
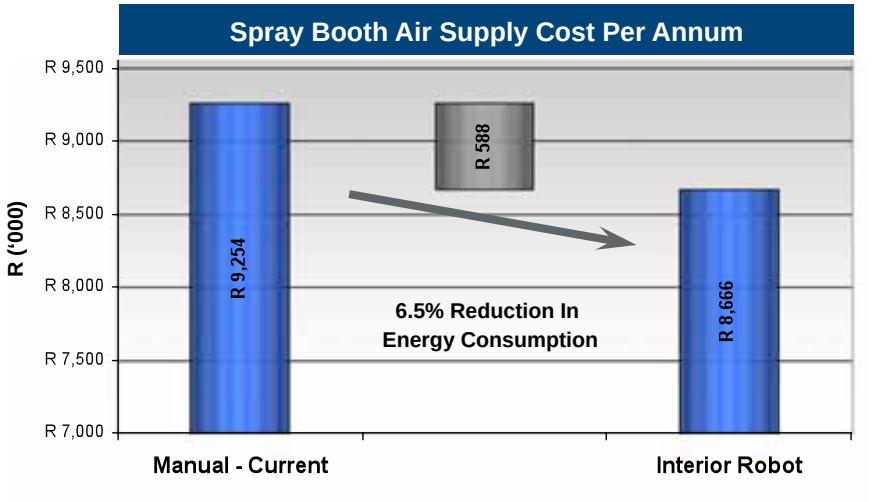
Paintshop Future Projects - Interior Painting Robots





- Reduced air flow (down draft) in Spray Booth as a result of improved transfer efficiency of robots vs. manual painting process. Less electricity required to operate Air Supply Units.
- Reduced paint overspray into Wash-out System – saving of 26%.
- Reduced electricity consumption for operating pumps in Wash-out System.
- Reduced chemical treatment of Wash-out System – environmental improvement.

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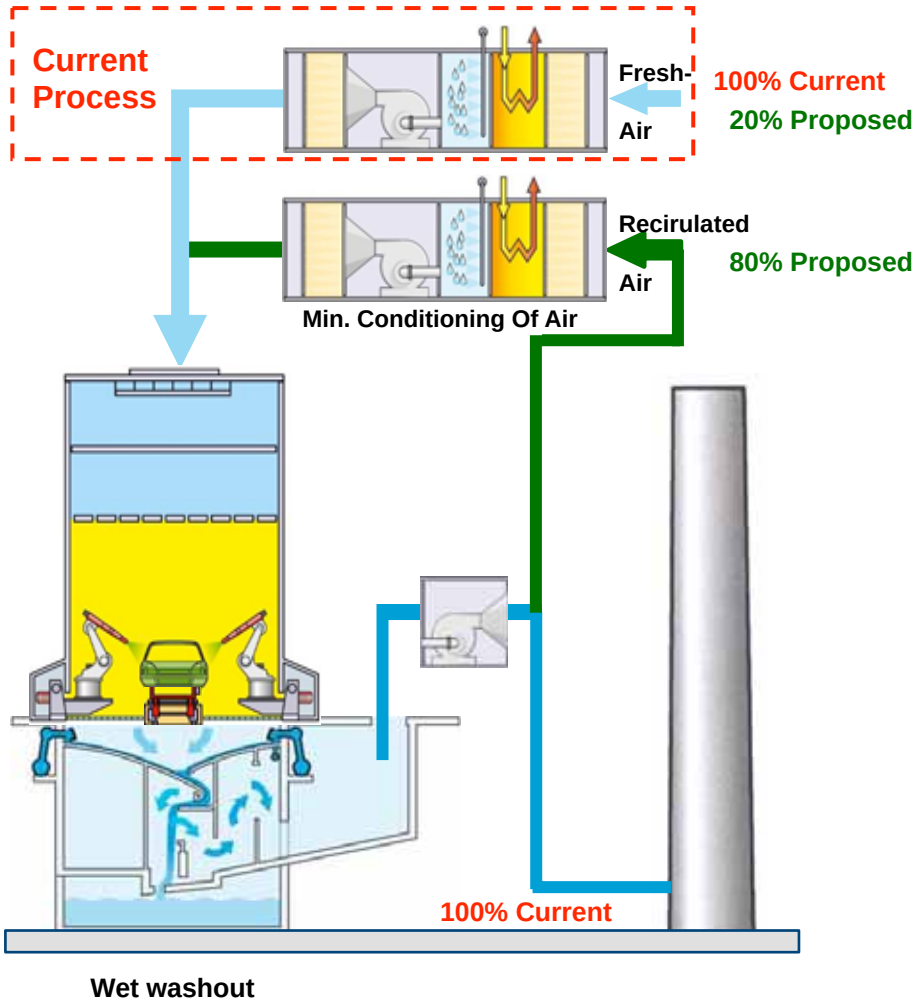
Paintshop Future Projects - Dry-Scrubbing



- Current system utilizes 100% fresh air for spray booth consumption.
- Dry-scrubbing allows for 80% recycled air to be used.
- Electricity saving due to only 20% fresh air intake.
- Significant cost reduction of air treatment - savings in consumption of Electricity, Gas and Water.
- Energy consumption reduced by 70%.
- Water consumption reduced by 78%.
- Cost saving of € 0,4 mio per annum.

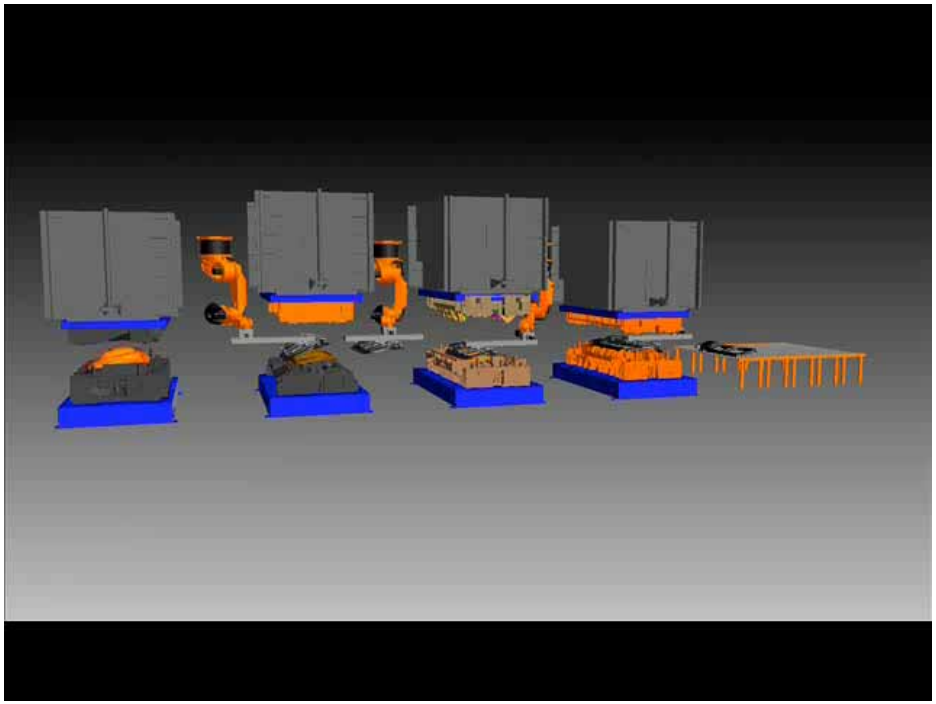
Press Shop Future Projects - Energy Saving Initiatives

- Building Orientated 15° off North
- Side cladding & roof insulated with factory board
- Thermal insulation of gutters

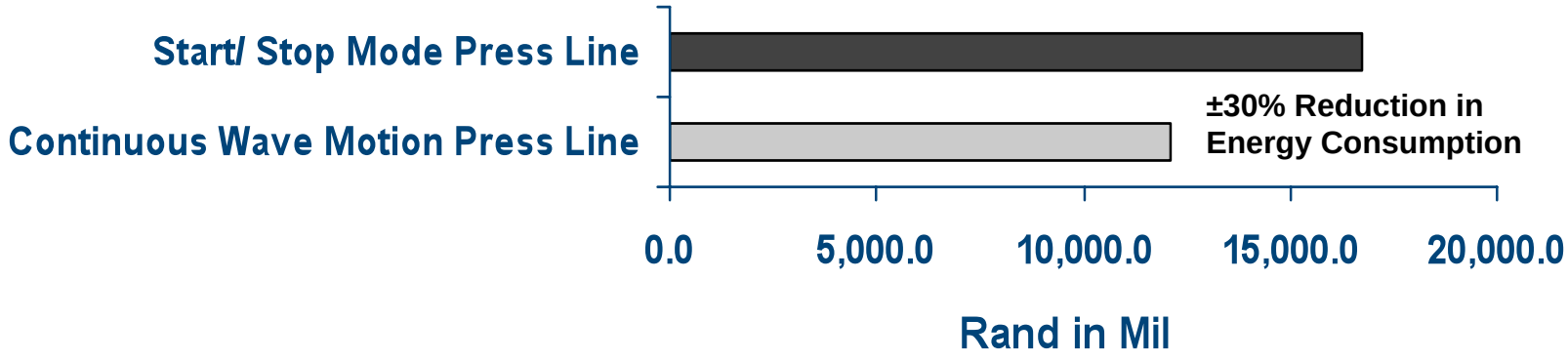
- Movement & daylight sensors control internal & external lighting
- Energy saving light fittings installed.
- Light management system installed to adjust lux levels automatically

- Daylight saving achieved utilizing skylights and reflective colors on cladding & structural steel paintwork

Energy Saving Initiatives - New Press Line



- In normal Start/Stop mode the clutch and break operation consumes additional energy
- New Press Line operates with Continuous Wave Motion including energy efficient motors – no application of Clutch/ Brake



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Manufacturing contribution to emissions

Life Cycle
= 26,2 t CO_2

22 %

Manufacturing
= 5,9 t CO_2

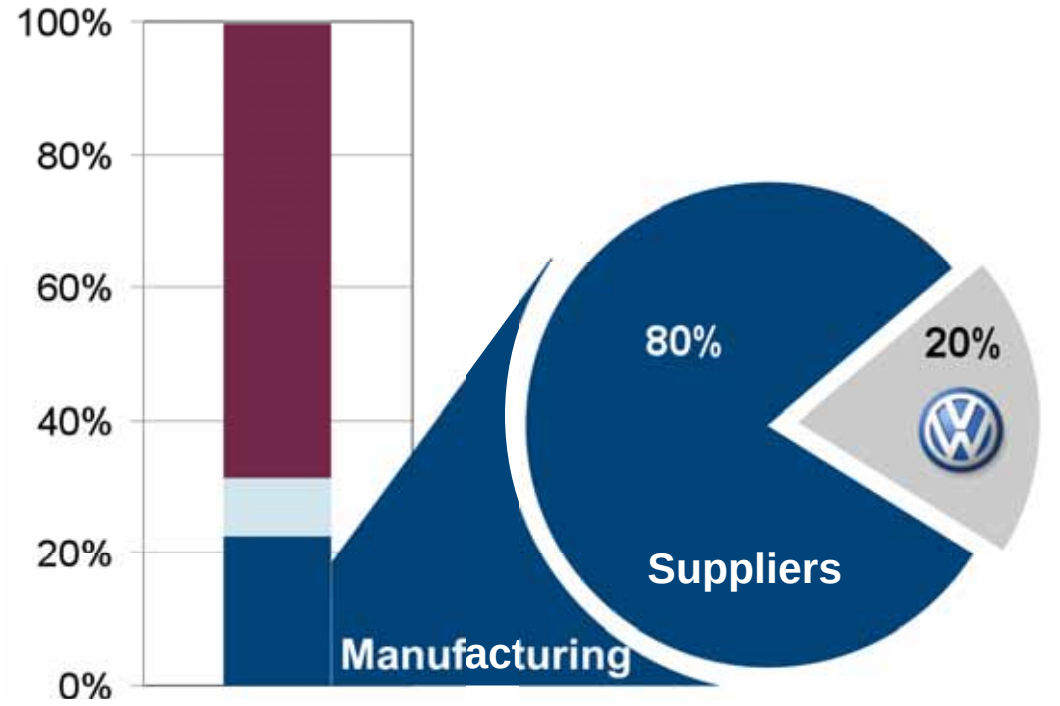
20 %

Volkswagen Portion
= 1,2 t CO_2

Vehicle Emissions

Fuel Supply

Manufacturing



CO_2 Life Cycle Impact - Example Golf VI 1,6 TDI, 150.000 km

BlueEnvironment

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Environment: Rhino Anti-Poaching Initiative

WILDERNESS FOUNDATION

VWSA Contribution: help patrols around SA's game parks to prevent poaching of Rhinos.

Key Partners : Wilderness Foundation, 5 major conservation organisations, vehicle accessory suppliers

Background:

•South Africa is custodian to over 90% of the world's Rhino. In 2010 alone, 333 Rhino were killed in South Africa by poachers for their horn. Already in 2011 over 152 Rhino have been poached (nearly one per day).

•Creating awareness for the intensity of the scourge and Wilderness Foundation and VWSA initiative via websites and press events.

•Visitors to VWSA Commercial Vehicle website can make financial contribution or sign petition against the use of rhino horn (these actions managed by the Wilderness Foundation)

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Environment: Great White Shark Project at Dyer Island

- Why:
  - Less than 3,000 remain due to hunting, entanglement in nets and pollution
  - Long gestation periods (14-18 months) mean they cannot reproduce every year
  - Slow maturation (males @ 9 or 10 and females @ 14-16 years old)
- What:
  - Fund research boat, fund research into wound healing and feeding habits, sponsor migration monitoring (tagging programme)
  - Brand education centre for school children and research boat
  - “Jaws effect”: counter the bad publicity sharks have through an internal and external education programme
  - South African public have an emotional connection to a beach lifestyle, family holidays at the seaside and the protection of marine life

Dyer Island Conservation Trust

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Environment: Southern Ocean Albatross

- Why:
  - 22 species, 18 of which are under threat of extinction – identified as priority species
  - These birds partner for life, taking 10 years to reach breeding maturity and only lay one egg every two years
  - Long line fishing and trawling results in entanglement and death
- What:
  - Funding branded streamers to detract from fishing lines (visual below)
  - Promote quick sinking lines
  - Fund statistical analysis and tracking devices
  - Team up with Birdlife South Africa to promote awareness & fund observers on boats

BirdLife SPECIES CHAMPIONS

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Environment: African Penguin

- Why:
  - Lack of food as a direct result of sardine and anchovy commercial fishing has resulted in a population crash, landing this creature on the endangered species list
  - Largest colonies are Dassen Island (4,500 breeding pairs remain) and St Croix in PE (8,000 pairs)
- What:
  - Create Marine Protected Areas (‘no go’ fishing areas on a rotation system)
  - Build new colonies where currently in decline
  - Assist with captive breeding programme

BirdLife SOUTH AFRICA

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Think Blue. Building the brand Internally & Externally

Think Blue.

Internal Focus:
Product and Brands
Plant and Organisation
Dealer Network

External Focus:
Customer Communication

Eco Projects:
Corporate Social Responsibility
Initiatives and Sponsorships

- BlueMotion
- BlueMotion Technologies
- The future: hybrid and electric

Volkswagen Group SA Internal Environmental Awareness drives

Cascade Think Blue message to all Dealerships

- TV
- Print
- Social Media
- Documentaries
- Sponsorship
- POS
- Editorial/PR

Cooperation and sponsorship with Environmental Organisations

Phase one: 3 marine focused projects / sponsorships

Dyer Island Conservation Trust

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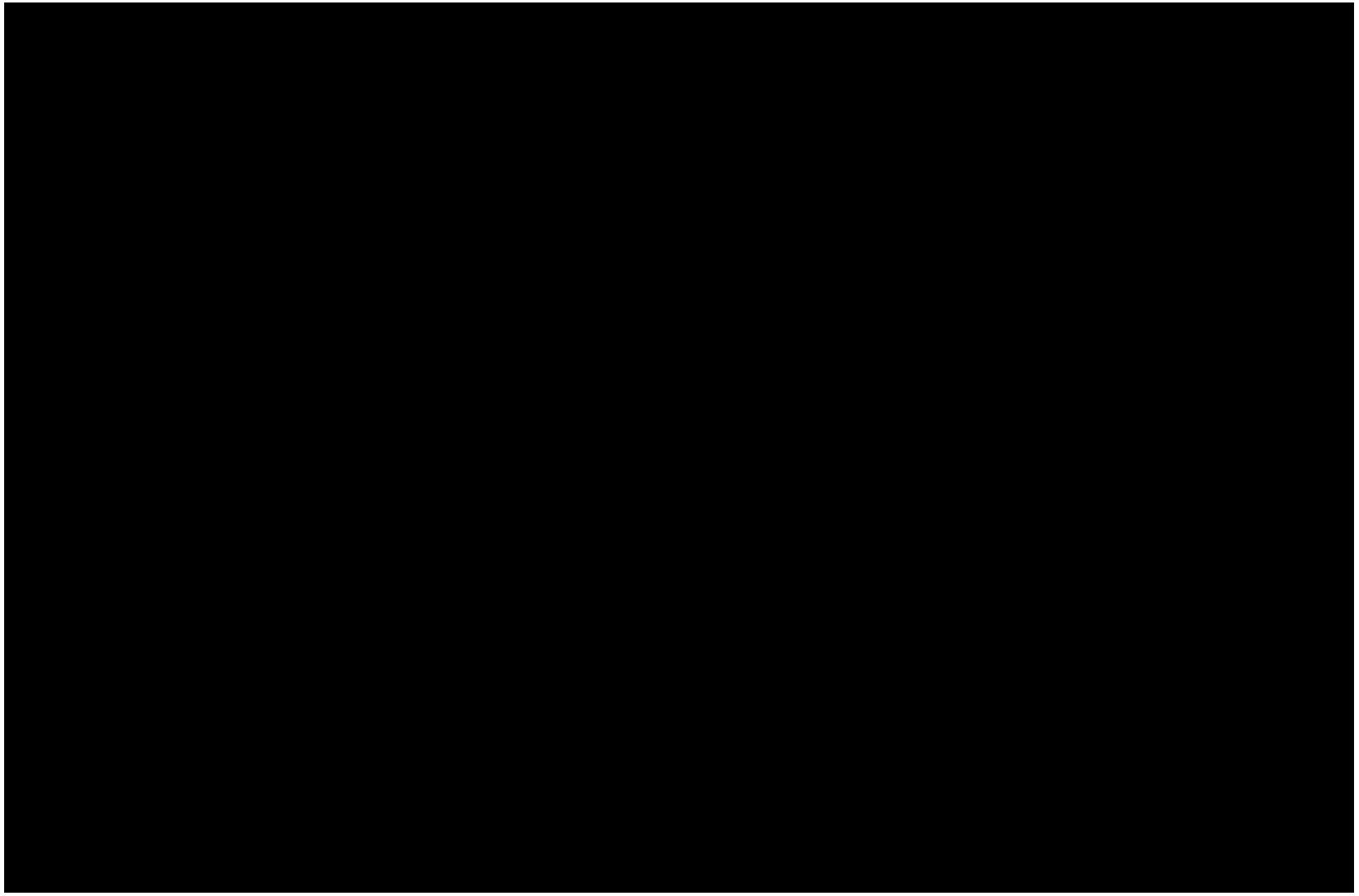
Think Blue. Communications touchpoints examples



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We can. Can you.

Think Blue.