

News Service for Decision Makers in Politics and the Economy

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Milestone or muddle – what do real driving emissions measurements tell us?

Since the beginning of the 1990s, diesel-driven passenger vehicle nitrogen oxide emissions have fallen by 97 percent. For this reason alone, the aggressive rhetoric by a number of environmental NGOs paints a distorted picture of reality. Our air has become ever cleaner in recent years and decades.

Statutory limits on pollutants are prescribed throughout Europe. As with fuel consumption, they are measured on a laboratory test bed applying the so-called New European Driving Cycle (NEDC). The NEDC introduced in 1996, is now outdated: the urban driving element is too high and the accelerations too soft. The NEDC makes no distinction between driving in the mountains or in the plains. It ignores faster motorway journeys just as it does the use of air conditioning, radio or heated seats. Consequently, laboratory measurements differ from road traffic values. These differences are particularly dependent on individual use.

The NEDC is to be replaced in 2017 by the more modern WLTP standard (Worldwide Harmonized Light Vehicles Test Procedures). It is a better overall representation of real traffic conditions, with higher average speeds, greater speed fluctuations and more stringent inspection requirements. As with the NEDC, the WLTP cycle will also be determined on the test bed. And yet the WLTP standard too will not always exactly reflect fuel consumption on the road and real emissions because fuel consumption and emissions continue to be extremely dependent on driving style and environmental conditions.

As of 2017, the WLTP laboratory measurements will be complemented by the RDE test (Real Driving Emissions) which will measure vehicle pollutant emissions directly on the road. This will see vehicles equipped with so-called PEMS technology (Portable Emissions Measurement System) for mobile emissions measurement. Unlike the laboratory investigation, the RDE test does not require compliance with any fixed driving cycle. In practice, the RDE will be conducted under any environmental conditions. Acceleration, outside temperature, wind conditions and traffic situation are random.

According to the standards that have now been agreed, as of September 2017 nitrogen oxide emissions by new types of passenger vehicle in the RDE test must not exceed 2.1 times the statutorily prescribed laboratory value of 80 mg/km (conformity factor). As of 2020, new vehicle types' road emissions must be identical with the test bed limits. This may then only be exceeded by 0.5 to take account of the error margin.

The conformity factor of 2.1, which applies from 2017, is not – as a number of critics suppose – a fig leaf for the automotive industry to hide behind. When all is said and done, this is an entirely new and challenging limit for road measurement, which has to be implemented within a mere one and a half years. The technical requirements are very ambitious. Many vehicles are already on the market or their design finalized, and were unable to be developed to comply with the new legislation.

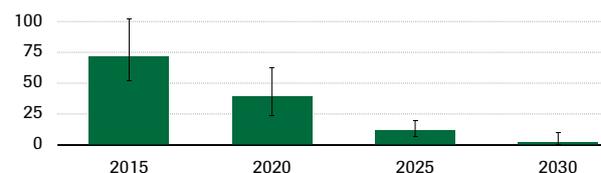
A conformity factor of 2.1 also does not mean that the vehicles fundamentally emit much more than the typical cycle value. It merely covers the maximum permitted margin of exceedance. The conformity factor is also required because even with very accurate measurement the measurement tolerance is around 50 percent.

The RDE measurement will also affect air quality in towns and cities. In consultation with the German Environment and Transport Ministry, the VDA has commissioned an impact analysis of the RDE. This demonstrates that the introduction of Euro 6 and RDE (see figure) has achieved air quality targets in Germany. Consequently, NO₂ air quality exceedances at measuring stations in close proximity to traffic will fall by 83 percent over the next ten years – solely as a result of the constant renewal of the fleet with Euro 6!

Additional measures such as the introduction of Green Wave phased lights and the avoidance of congestion can significantly accelerate this trend, ensuring rapid compliance with NO₂ air quality limits in Germany.

Air quality exceedances will fall by 83 percent over the next ten years with the introduction of Euro 6

Number of measuring stations with air quality exceedances/year



Source: AVISO study 2015: calculation of the air quality impact of Euro 6

Opening the door to free trade: Europe needs a coherent strategy for global market access

It is a paradox: resistance to free trade is greatest in the country that benefits from it most. It is disturbing that the protest against the EU's trade agreements with the USA (TTIP) and Canada (CETA) culminated in the biggest demonstration in Germany for many years in October 2015. German companies above all depend on open markets because of their global positioning. Their integration in globalisation underpins Germany's prosperity.

International trade increases the prosperity of all participating countries – this was demonstrated by Adam Smith as long ago as the 18th century in his theory on free trade and this is borne out by the development of countries engaging in trade. Germany is the prime example: global economic interconnections are among our most important strategies for success. Worldwide exports ensure value creation and thus employment. Almost one in four jobs in Germany depends on foreign trade. The export of goods and services represents around half of German gross domestic product. Putting it another way: only if other countries keep their markets open German companies can be successful.

Yet the trend towards protectionism is on the increase worldwide. For example, in a recent report, the EU Commission has documented 858 restrictive measures by important trade partners. The World Trade Organization (WTO) has even identified more than 1000 infringements of the principles of free-trade – from Argentina by way of Brazil, Russia, Turkey, to China and India. The range of restrictive trade practices extends from high import tariffs via the unilateral promotion of domestic products to technical standards that make imports more complex or expensive.

German and European policy must take the opposite tack. This requires a strengthening of the WTO. The ideal solution would be to conclude the Doha Round with comprehensive tariff reductions by all 161 WTO members. But as long as this process is bogged down, the EU has to look increasingly to bilateral agreements.

The agreement with the USA is particularly important. The United States is the second most important export country for German motor manufacturers after Great Britain. In terms of export value, at more than 20 billion euros the USA is even in first place. Dismantling trade barriers and the consequent savings in time and money would have a particularly noticeable effect. Companies could expand and invest more rapidly. That would preserve jobs in Germany and Europe and create new ones. Especially for many small and medium enterprises, which frequently cannot afford to tailor their products to transatlantic technical standards, new sales opportunities in the US market would emerge. The ensuing competition results in a better and more diverse offering of goods for consumers.

India, the ASEAN countries and Mercosur are also major markets of the future. Motorization levels in these regions are still comparatively low. Whereas in Germany approximately one person in two owns a car, in the ASEAN region scarcely 156 inhabitants per thousand have a car, and in Mercosur it is 176. The South East Asian countries, in particular, have experienced enormous political and economic development in recent years. This is also apparent in the automotive market in these countries, which has grown by around two thirds within five years. A growing and consumption-oriented middle class with increasing purchase power promises high growth potential for years to come.

The EU's goal of concluding an agreement with the entire ASEAN region has not yet been achieved. To date, negotiations have been confined to Singapore and Vietnam. The negotiations with Mercosur that have been dragging on for years are not making any fundamental progress and work on an agreement with India is currently on ice.

This shows that the EU's trade policy must become more consistent. We must not be relegated to the sidelines as spectators while others dictate the game. The European Union is the world's biggest trading block – bigger even than the USA and Japan. No continent exports more goods and services. This is a good starting position for international negotiations. But Europe has thus far been unable to throw its whole weight into the balance and improve market access for its key industries in important countries.

The agreement between the USA and the Pacific countries (TPP) should be a wake-up call for Europe not to get left behind by other regions of the world in the struggle for open markets and competitiveness. Because there is much at stake: in its new trade strategy, published in October, the Commission rightly emphasizes that more than 30 million European jobs depend on exports to countries outside the EU with 90 percent of future global economic growth being accounted for by non-European countries.

What is the future for the Middle Kingdom?

Annual economic growth of 6.5 percent: This is a figure that many European countries can only dream of. Even with this target, on the other hand, China is committing to a relatively moderate growth path – by its standards. The upheavals in the Middle Kingdom are currently enormous. The immense over-capacity in the steel and coal industry is to be cut. Services and consumption are to become the new pillars of a stable economic system. Innovation instead of cheap exports, high-tech products instead of heavy industry is the motto of transformation. Doubts that an economic change on this scale can succeed smoothly have grown – as is also evident from the volatility of Chinese stock exchanges.

But what does this shift mean for the German automotive industry? Are we experiencing the beginning of a permanent crisis? Or are we only seeing a small dent in further growth?

The fact that the growth rates of the past were unsustainable in the long term is no surprise. The German automotive industry was and remains braced for that. The Chinese automobile market has ramped up impressively. Sales have increased by a factor of more than 30 since 2000. As recently as the turn of the millennium, with unit sales of around 600,000, Chinese volumes were equivalent to sales in the Netherlands. 2006 was the first time that more vehicles were sold in China than in Germany and in 2012 already

more than in the whole of Western Europe (see figure below). Since 2013, China has been the world's biggest single market ahead of the USA – and will defend this pre-eminent position once again this year with sales of fully 21 million units.

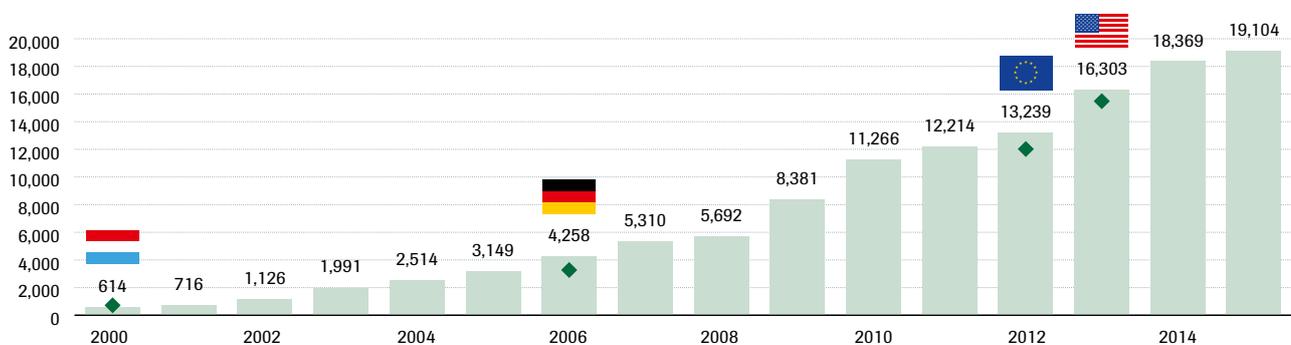
The important message is: the Chinese market continues to have enormous potential. The level of motorization is still low. In China there are 69 automobiles per 1,000 inhabitants (as at the beginning of 2016). This is an increase of more than 13 percent on the year before. With a score of 198, Beijing boasts the highest automobile density by far among the most important metropolitan regions (see figure on page 5). By way of comparison: In Germany there are 550 automobiles per 1,000 inhabitants. In China even “smaller” second and third order cities have populations in the high single digit millions. In many of them, automobile density is still significantly below the Chinese average.

Because of the severe environmental pollution in many places, the Chinese market offers a large potential for modern conventional automobiles and for alternative propulsion systems. The first cities are already clearly giving privileged treatment to zero-emissions vehicles. The Chinese state also offers numerous incentives for purchasing electric vehicles. 2015 saw more new electric vehicle registrations in China than in any other country.

Dynamic growth of the Chinese market:

More new cars were sold in China in the year 2000 than in the Netherlands. The level of the German market was exceeded as early as 2006. In 2012, with more than 13 million units, passenger vehicle sales in China exceeded those in Western Europe – and since 2013, China has been the world's biggest market, bigger even than the USA.

Units in 1,000

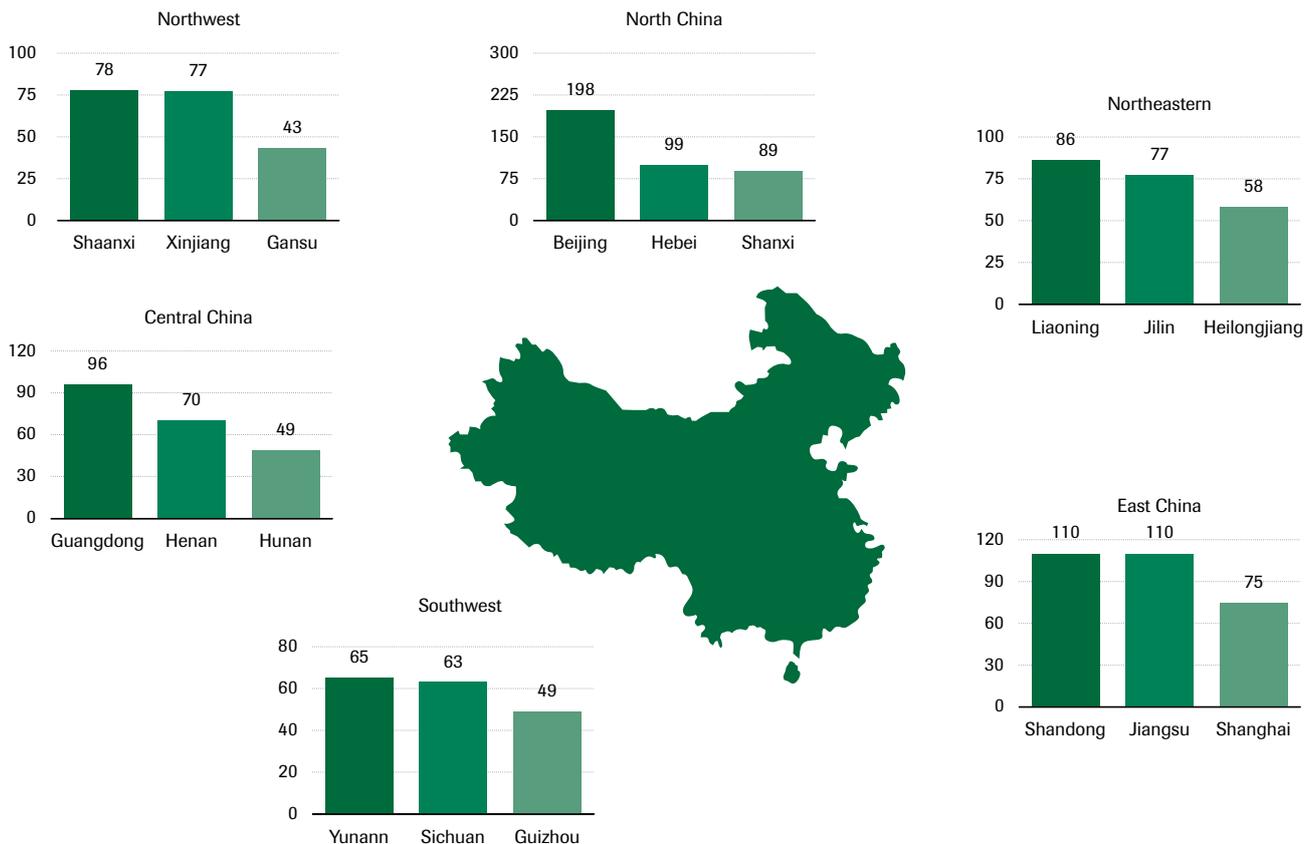


Source: VDA

(continued on page 5)

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Passenger vehicle density in China by province (2014)



Source: National Bureau of Statistics China

The Chinese passenger vehicle market continues to be very much an important mainstay of the automotive industry. Every fifth new car sold in China today belongs to a German group brand. There is therefore no alternative to the consistent globalization strategy our companies are pursuing. This applies not just to the major manufacturers. Numerous German suppliers as well are represented in China – with now significantly more than 300 production locations. In 2015, German companies produced around four million passenger vehicles in China. That was 42 percent of foreign production or 26 percent of global production by German manufacturers. For 2015 as a whole, with 204,000 passenger vehicles, China was also the German automotive industry's fifth most important export partner.

The development of the Chinese commercial vehicle market is clear evidence of the Middle Kingdom's general economic malaise: in the past year it collapsed by more than 24 percent.

On the one hand this is because there are changes afoot in the transport industry. One-man companies are becoming increasingly rare; logistics is becoming more professional. On the other hand, the overheating of the property market also caused the building industry to collapse – traditionally a major purchaser of vehicles.

The global economic and financial crisis demonstrated that only an international and diversified positioning can compensate for weaker phases in one region of the world. That means: the lower Chinese growth is, the more important the European domestic market becomes. And nor must we neglect transatlantic relationships – quite the contrary: Minimizing risk through a global market presence!

The automotive industry as a partner for urban mobility

Two trends are currently dictating and transforming the mobility scene: urbanization and digitization. Since 2007 more people in the world have been living in cities than in the country. Three quarters of Germany's inhabitants are already city dwellers. The population of numerous metropolitan areas will continue to grow in the next few years. This poses challenges for cities. One such challenge is designing urban mobility and urban logistics. How can city dwellers' need for mobility be satisfied? How can the increasing number of goods transport movements in the city continue to be organized in a stable manner? And how is it possible at one and the same time to preserve people's quality-of-life, meet air quality and noise protection targets while ensuring traffic safety?

This is where the second major megatrend – digitization – affords opportunities for cities. The possibilities provided by information and communication technology are opening up new solutions for traffic in urban areas. The automotive industry is collaborating closely with partners on developing such concepts.

A keyword here is networking. By networking vehicles with one another and with the infrastructure, the traffic can be made safer and more efficient. One example of such cooperative systems in the city is the traffic light phase assistant, which calculates the optimal speed in each case for a constant green wave by communicating between traffic light and vehicle.

Networking between cars is complemented by networking with other means of transport. For example, modern mobility apps enable a multimodal, situationally-dependent selection of mode of transport and route, and thus a better and simpler interlinking of the various means of transport. In this way, the traffic system as a whole can be made more efficient.

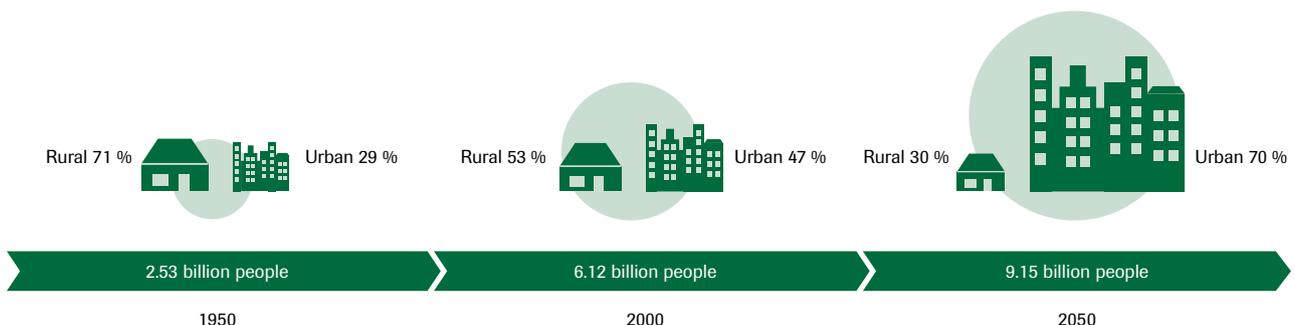
Car sharing as well is benefiting from digitization. Car sharing helps to reduce the traffic and parking footprint. Car sharing is not, of course, the sole solution for all mobility problems in the city but it is certainly an important building block within an overall concept.

Intelligent mobility solutions also reduce traffic looking for a parking space. According to a study by the economic research and consulting company Prognos on behalf of the automotive technology research association, German motorists spend a total of 560 million hours each year looking for a parking place. By making better use of available data on parking space use, and by exploiting additional data sources this could be reduced – depending on scenario – by around 7 to 30 percent. Expressed in terms of kilometers driven, this would reduce "mileage" by between 0.6 and 2.7 billion kilometers.

Exploiting the opportunities of digitization and alternative propulsion systems for urban mobility requires cooperation between the automotive industry, the telecommunication and IT sector, mobility and logistics service providers, the energy business, car park operators and the building and retail industries. Politics plays an equally important role in this, of course – increasingly so at local level as well.

An initiative on urban mobility has therefore been set up within the VDA. The intention is to develop a forum intended in particular to facilitate a dialog between the automotive industry and cities. From the outset, the objective of such a forum for dialog is jointly to define and develop solutions in collaboration between industry and cities.

The human population is growing and moving to the city



Suppliers: the heart of the German automotive industry

The German automotive industry is characterized by close collaboration between manufacturers and suppliers. The latter account for 75 percent of value creation, are highly innovative and are not infrequently among the world market leaders in their field. 19 German companies feature in the list of the world's top 100 suppliers. Domestic suppliers even occupy first and second place with Bosch and Continental. Following the merger between ZF Friedrichshafen and the American supplier TRW last year, the new company should occupy third place.

The global passenger vehicle market is growing all the time, especially outside Europe. Whereas in 1990 the global market volume was only around 40 million cars, last year it was already more than 78 million – an increase of 95 percent. As the growth markets cannot meet demand from domestic production alone, companies must put themselves on an international footing. This is why vehicle manufacturers and suppliers are increasingly manufacturing in locations where there is a dynamic growth in demand. Whereas it is not difficult for manufacturers and major suppliers simultaneously to build and operate plants in Mexico, Russia, China, India, the USA and at home, smaller companies can only do this by dint of great effort. They nevertheless need to find ways of aligning their business model accordingly. Internationalization as a whole also bolsters domestic supplier production: with more than 300,900 employees, we are currently experiencing the highest employment levels since 2005 (see figure).

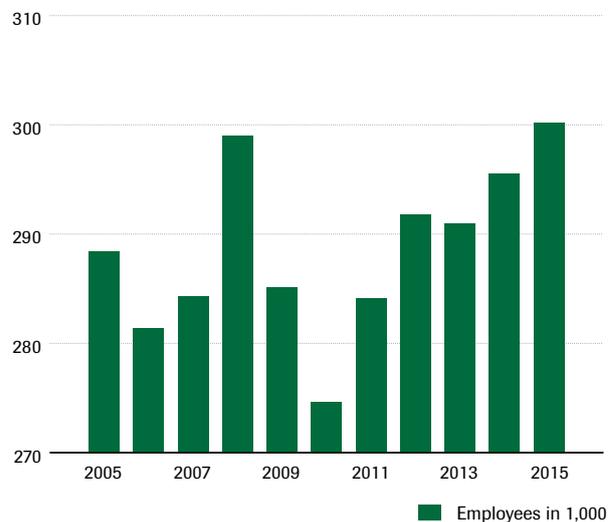
But the suppliers' success is no reason to rest on one's laurels. Yields constantly have to be fought for. Companies also face rising challenges. Manufacturers' needs are changing with the technological leaps being made by alternative propulsion systems or digitization. The demand for new products such as battery cells, modules, on-board power systems and control units for electromobility is increasing. Individual mobility is becoming ever more digital and more networked.

With an eye on transformed value chains, companies are also attempting to add to their product portfolio through mergers or acquisitions. Management consultancy PricewaterhouseCoopers valued global mergers and acquisitions in the automotive supply industry in 2015 at 48 billion dollars. This figure is significantly higher than the 37 billion dollars in the previous record year 2007.

Manufacturing and supply companies depend on a secure environment if they are to sustain the success story. In addition to unit labor costs and labor market flexibility is, these include above all, affordable energy costs. The green power levy will continue to increase. As of this year it is a new record high of 6.354 ct/kWh. The extra cost this imposes on the German automotive industry is around 30 million euros, or a total of almost one billion euros per annum.

Ultimately, suppliers and manufacturers depend on free trade. The offshoring of capacity is also partly as a result of protectionist measures. That is why Europe should resolutely hold aloft the flag of free trade. Prosperity and peace within the EU were achieved not despite but as result of the European internal market.

Highest employment levels in the German automotive supply industry since 2005



Source: VDA

Bring long HGVs into regular operation

For almost four years now, Germany has been testing the use of long HGVs. 53 companies with 138 vehicles are now involved, and their experience has been uniformly positive. Long HGVs enable the same volume to be transported with fewer journeys. On average one long HGV replaces 1.56 conventional HGV journeys, which means that two long HGVs replace three truck trailers. That means lower fuel consumption and lower CO₂ emissions. The field trial demonstrated fuel savings of up to 25 percent.

At the same time the long HGV demonstrated that it negotiates traffic smoothly and safely. A number of critics' horror scenarios have proved to be unfounded. Instead, the facts are: long HGVs are equipped with all the available safety systems, and are therefore especially modern and safe. They are also easy on the roads, because the permissible all-up weight of 40 tonnes is distributed across more axles than for conventional HGVs (seven or eight axles instead of five).

Positive experience

It is now becoming increasingly apparent that the long HGV does not provide additional competition for rail, fitting instead particularly well into combined transport. This is also emphasized by a Federal Highway Research Institute report. There is a constant attempt to create the impression that long HGVs threaten a shift back from rail to road. One of the facts this ignores is that long HGVs transport light, bulky goods. These are already transported by road, not by rail. On the other hand, a large proportion of the goods transported by rail will continue to be unsuitable for road transport. The field trials have thus far not provided any indication that long HGVs are causing a shift from rail to road transport. Instead, long HGVs, with the combined transport delivery and collection advantages they confer, are boosting the competitiveness of these transport movements, and thus also supporting rail.

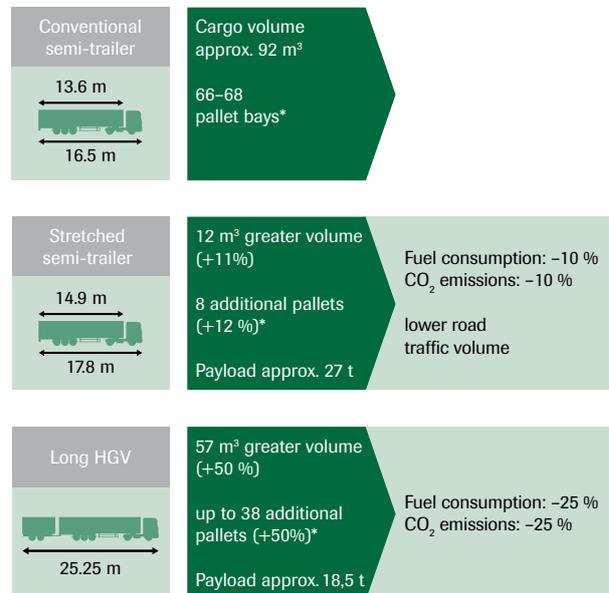
Responsible regular operation

In the field trial, long HGVs only operate on statutorily authorized stretches of road. These include motorways, some federal highways and feeder roads serving the loading points. City centers are excluded. While the field trial was in progress, this created a positive network. It comprises carefully selected stretches of road on which long HGVs can safely drive. On such a positive network as this – and only here – will long HGVs be allowed to drive after 2016. The German automotive industry therefore advocates the responsible regular operation of long HGVs in Germany.

Practical trials investigate potential efficiencies in long haul HGV traffic

A practical HGV trial involving Daimler Trucks and logistics companies DB Schenker Logistics, Große-Vehne and Elfein demonstrated considerable potential efficiencies for long haul HGV traffic. A fully-optimized conventional semi-trailer cut diesel consumption by as much as 14 percent. It featured components that are already available, such as a weight-optimized trailer and lightweight tires. The results achieved by one of the long HGVs in the test were impressive: in this specific case, CO₂ emissions were reduced by 17 percent. What that shows is: every opportunity must be exploited to the full to reduce road freight transport CO₂ emissions yet further: from the optimized engine, by way of tires, trailers and assistance systems to the long HGV.

Long HGVs in regular operation



* dual level load

Source: VDA

Invitation to the 66th IAA commercial vehicles: driven by ideas



The 66th IAA commercial vehicles will take place in Hanover from 22 - 29 September. The IAA not only offers visitors the highest density of world premieres but this year a very special highlight as well: the “New Mobility World logistics” initiative draws attention to digitization as well as new logistics concepts, offerings and services in the commercial vehicle sector. The five topic areas Connected Vehicle, Assisted & Automated Driving, Alternative Powertrain, Urban Logistics and Transport Services account for the content. This is complemented by an independent congress program with discussion forums, such as the carIT Congress, events on the “Last Mile” or networked and automated driving. On “Pitching Day” for start-ups, young companies will present their ideas and solutions. Exhibitors will be showcasing products, services and applications on the “New Mobility World LIVE” demonstration area. It will also be possible to test drive electric commercial vehicles.

The goING and workING workshops once again offer guidance to schoolchildren from throughout Germany in their study and career choices. There is also the classroom initiative, which not only offers cut-price admission, but also provides a wealth of material for preparing the visit to the show.

As the world’s most important mobility exhibition, the IAA is also an important platform for political communication. Numerous politicians from both the federal and state levels, EU representatives and other international guests are expected in Hanover. The VDA invites political office holders, ministerial officials and government agency staff for individual tours. Information on these tours is available from Kerstin Nasch of the VDA organizing team (Tel.: 030 897842401, E-Mail: nasch@vda.de). Details on the motor show and on participation in IAA specialist events are constantly updated at www.iaa.de.



Selected IAA specialist events

(Last updated: Start of April 2016)

Thursday, 22.09.

- Global Truck Markets 2016
- Challenges and Opportunities
- Professional driver qualification

Friday, 23.09.

- IAA China day 2016
- Training in the transport and logistics sector

Monday, 26.09.

- IAA Turkey day 2016
- Securing the cargo: practical experience for practical application (with demonstration)
- Commercial vehicles of the future
- Local and long distance buses and coaches

Tuesday, 27.09.

- Financial Services in the commercial vehicle business
- Hazardous goods day (with demonstration)
- carIT Congress

Wednesday, 28.09.

- Future urban logistics
- Tomorrow’s commercial vehicles – where next?