German parliamentary elections 2017 – an automotive perspective

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“Future now” at the 67th IAA Cars in Frankfurt am Main

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This autumn Germany will elect a new federal government. What the economy needs are reliable building plans offering employers and employees here at home a stable roof over their heads. Faced with active foreign policy tectonics and an uncertain economic weather forecast, this is no easy task.

A careful review is indispensable: How can we consolidate our own foundations? Where are amendments necessary? Viable long-term solutions require more than mere populist slogans.

An example of a lack of strategic vision was the protest – particularly vehement in Germany – against more and better transatlantic trade. Anyone who knowingly ignores the fact that Germany, with its export-oriented companies and its coveted, highly innovative products, is dependent on the international trade in goods, seems to be completely indifferent to jobs and prosperity as well. Protectionist trends are an insidious poison sapping our industrial strength, in urgent need of spirited advocacy in favor of trade – the more so as it is a financial buttress of our welfare state.

Brexit is another example of just how fragile an achievement open markets are. The priority for the EU in the upcoming exit negotiations should therefore always be to preserve its own cohesion and integrity. It is more than merely desirable to maintain the closely interwoven value chains with Great Britain – but not at any price.

Fundamentally, one thing should be clear: in global competition, the only successful locations will be those that pave the way for entrepreneurial pioneering spirit, innovation and creativity. In the digital era this is truer than ever before. It is precisely this we should be discussing. Instead, we are dissipating our energies in circular debates on wealth distribution and ever more dirigisme, as if gushing tax revenues were a law of nature. Ensuring these tax revenues don’t dry up is and remains the core political mission.

Exemplifying this is the automotive industry, which is facing radical change. German manufacturers and suppliers are themselves agents of evolution. Our companies invest around 39 bn euros each year in research and development – a sum unrivaled anywhere else in the world. An essential goal is making the entire spectrum of powertrain technologies even more efficient. In the case of combustion engines, we anticipate being able to reduce fuel consumption in the next few years by another 10 to 15 percent. Because of their efficiency, modern, low-emission diesel engines must and will remain an indispensable component of the mobility mix, especially in long distance road haulage. Current questions surrounding urban air quality will also be solved by the increasing market penetration of the latest Euro-6 technologies supplemented by on-road emissions testing. This is proved by scientific studies.

Despite these uncontested environmental advantages, a number of ideological hardliners are specifically threatening to shake diesel customers’ confidence. Greater objectivity is urgently required here, all the more so as there are truly more intelligent measures than short-term driving bans. Improving traffic flow would be significantly more effective. Less congestion means lower emissions. Digital services can also make valuable contributions. Networked and automated driving will significantly reduce emissions overall while at the same time increasing road traffic safety.

Our companies are also researching running future combustion engines on climate-neutral “e-fuels”. As these fuels store renewable energy, they can become an integral part of a successful energy transition.

In the electric mobility and hybrid drive arenas, a third of all patents originate from Germany. To help alternative powertrains break through, the German automotive industry will invest a total of 40 bn euros by 2020. In the same time frame, German manufacturers will expand their offering of e-cars to almost 100 models i.e. more than treble their number.
An industry that takes its courage in both hands needs regulatory policy that will intelligently moderate the technological transition to emission-free mobility in the long term. It is equally important to strike a reasonable balance between the environment and the economy in the European regulation of CO\textsubscript{2} for cars and commercial vehicles.

A premature, politically imposed end to the combustion engine would abruptly abandon huge parts of the technical competence for which we are internationally admired. An architect would probably have to content himself with the consolation prize for a future concept such as this.
Greater climate protection through more effective CO₂ regulation

It is a dilemma: On the one hand, European CO₂ targets for cars have been becoming ever stricter for years now; on the other hand real CO₂ traffic emissions in the recent past have not fallen. The reason: previous limits only relate to new vehicles. All cars already on the road, their age, the users’ driving style or the CO₂ content of the various fuels – all that remains unaccounted for in the CO₂ regulations as they stand. And this notwithstanding all these factors having a considerable influence on how much CO₂ comes out of a vehicle’s exhaust pipe. Especially as the vehicle fleet and motor vehicle mileage are increasing. This development is of course also positive and intentional, as it reflects people’s social participation and a healthy economic development based on the division of labor.

Cars and light commercial vehicles have been subject to European CO₂ regulations since 2009. Following the setting of an initial average target of 130 g CO₂/km for 2015, this target was subsequently tightened up, 95 g CO₂/km for 2020. Meaning Europe’s CO₂ targets for cars are the toughest in the world. The EU Commission is expected to submit its proposals for regulating CO₂ after 2020 in the autumn.

Voices have long been heard advocating simply updating the current system and ever tougher limits. But these demands fall short, for both climate and industrial policy alike. Excessive requirements can jeopardize not just automotive manufacturers’ competitiveness but also make new vehicles more expensive, thereby delaying the replacement of old cars by new and particularly efficient ones. Those who want effective climate protection need to see the big picture beyond purely offer-oriented regulation. Powertrain innovations remain important, but effective CO₂ reduction also needs to increase potential reductions beyond vehicle technology.

Key elements of CO₂ regulation after 2020 should therefore be:

1. Broadening

Comprehensive climate protection in the road traffic arena requires CO₂ legislation to address all potential optimization opportunities within the automotive industry and beyond, in addition to vehicle efficiency alone. This being so, “Post-2020 regulation” should be built on two pillars:

- Pillar 1: CO₂ potential within the automotive industry – i.e. further efficiency enhancements for new vehicles (“tank to wheel”) as well as other reduction opportunities within the automotive industry
- Pillar 2: CO₂ potential outside the automotive industry – i.e. Initiatives addressing the energy sources (fuels, electricity) as well as the demand side and existing fleet (“well to tank” and “usage phase”)

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<th>Alternative</th>
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**CO₂ target 2030**

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2. Conditioning

As it is currently still not clear how sales of e-models, and thus also costs, will develop, a conditioned, “breathing” fleet regulation would be appropriate, that adapts the prescribed target values to the alternative powertrains’ actual success and make them dependent upon the actual development of the infrastructure. This would enable the uncertainties surrounding market growth to be taken into account. This is necessary because – unlike previous CO₂ reduction achievements – it is primarily the political and regulatory frameworks in the member states that are critical to market penetration, e.g. of e-vehicles (charging infrastructure, public procurement system, taxation, incentive policies etc).

3. Percentage reduction logic

Because of the transition from the current NEDC test cycle to the new WLTP laboratory test, a new 2017 target can only sensibly be reported as a percentage reduction rate and not as an absolute limit. Data for defining a WLTP limit will be available from 2020 at the earliest.

4. Technology neutrality

It is critical that the Commission creates a regulatory framework that is technology neutral and does not exclude any technology option. This is the only way to boost efficiency spanning all powertrains and fuels. Diesel, for example, accounts for a significant share of CO₂ reductions to date. Together with the optimized gasoline engine, it will achieve yet further progress. Combustion engine efficiency can be increased by a minimum of between 10 and 15 percent in the next few years. Moreover, in addition to electric mobility, biofuels and renewable fuels harbor significant potential for reducing CO₂ traffic emissions.

5. Harmonization

To ensure consistency with the climate targets decided on by the EU member states for 2030, future car regulations should also be geared to 2030.

Future CO₂ strategy on two pillars

Guideline: More climate protection by a more comprehensive and better regulation

Source: VDA
Climate protection is an important driver of automotive development. Efficiency enhancements and reducing CO₂ emissions benefit the environment and customers alike. This being so, classical powertrains will be further optimized. We anticipate being able to boost gasoline and diesel vehicle efficiency in the next few years by at least 10 to 15 percent. The German automotive industry will invest more than 40 bn euros in alternative powertrains by 2020. We are developing and building hybrid and electric vehicles. We are also conducting research into “e-fuels” that are not reliant on oil. These synthetic fuels can ensure CO₂-neutral mobility even with the combustion engine, because they fix exactly the same amount of CO₂ during production as they give off again during combustion.

No one today is yet able to say which is actually the technology of the future. En route to the future we need the combustion engine.

With an eye to particulates and nitrogen oxides, the issue of clean air is very much of the moment and high up on the political agenda. The heated and largely unsophisticated discussion on diesel and gasoline vehicles often omits to say that each technology has different strengths and weaknesses. That is particularly true of the diesel engine.

The modern diesel is up to 25 percent more economical and generates up to 15 percent lower CO₂ emissions than a gasoline engine. It therefore makes a disproportionate contribution to achieving European CO₂ targets. The fitting of diesel particulate filters as standard has also enabled particulate emissions to be slashed.

Since the introduction of Euro 5 in 2009, diesel vehicles have significantly outperformed on all emission components such as soot, hydrocarbons (HC) or carbon monoxide (CO), especially in actual operation. Only in the case of nitrogen oxide emissions (NOₓ emissions¹) were increased emission levels a technical necessity in actual operation.²

There have been significant improvements as a result of the introduction of the Euro 6 emission standard. Diesel vehicles are nevertheless responsible for a comparatively high proportion of road traffic nitrogen oxide emissions. But here too one needs to look carefully to identify and clarify the situation. We have put together a few facts and figures.

- According to German Environmental Agency (UBA) data, Germany reduced NOₓ emissions between 1990 and 2015 by 59 percent. Road traffic-related NOₓ emissions fell by as much as 70 percent – despite significantly higher traffic volumes (see graph).³

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1. NOₓ emissions comprise nitrogen monoxide (NO) and nitrogen dioxide (NO₂). The total of the two nitrogen oxide categories – NO and NO₂ – NOₓ is relevant for vehicle approval regulations. In the various Euro limit categories, ceilings for NOₓ in the exhaust gas (emission) were defined: for example Euro 6: 80 mg/km. For NO₂ there is also an EU emissions limit for ambient air: NO₂ – maximum hourly average value: 200 µg/m³; NO₂ – maximum annual average value: 40 µg/m³.

2. The technical necessity related to reliable operation. For example, when Euro-5 was first introduced there were problems with the exhaust gas recirculation failing. As part of ongoing development, especially in the case of Euro 6, new control algorithms and strategists were developed alongside the use of SCR technology.

• In 2015, immission values were measured at 518 stations in Germany. The average annual NO₂ value of the ambient air was exceeded at the traffic measurement stations; it was complied with at all other urban and rural stations. That means that the exceedance occurs at locations in which the pollution accumulates, and is not generalized in nature.³

• Only five of the 518 measuring stations exceeded the average hourly value of 200 µg/m³ NO₂ more frequently than the 18 occurrences permitted.⁴

• Of the 246 traffic measurement stations, 142 (around 58 percent) exceeded the permitted annual average value of 40 µg/m³ NO₂. In the case of two thirds of the measurement stations that exceeded the limits, the values were 49 µg/m³ NO₂ or less.⁵ Targeted initiatives will enable these stations to comply with the limits within the foreseeable future.

• Only 14 measurement stations recorded values of 60 µg/m³ NO₂ or more. These are busy roads.⁶

• NO₂ immissions can be considerably reduced by a mix of measures comprising phased traffic lights, avoiding congestion by professional building site and car park management, intelligent traffic direction and ultramodern taxis and local public transport.

• Measurements by the Technical University in Munich and the ADAC show that on a case-by-case basis better control of traffic lights alone can reduce NO₂ emissions by 27 percent.⁷

• Given a normal market penetration of Euro-6-vehicles, the number of instances in which limits are exceeded at the measuring points will halve within the next five years.⁸

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5. UBA: “Annual assessment NO₂ – 2015”.

6. UBA: “Annual assessment NO₂ – 2015”, verdict: 142 measuring stations exceed the limit, in the case of 95 of the measuring stations, the values are between 41 and 49 µg/m³ NO₂ (95 of 142 = 66.9 percent).

7. UBA: “Annual assessment NO₂ – 2015”.


• An extension of 30 kph speed-limited areas is not an effective remedy against nitrogen oxides. With diesel, lower speeds result in more NO₂: a 30 kph limit means an increase in emissions of around one quarter compared with a 50 kph limit.¹⁰

• In a survey by the ADAC in summer 2016, better traffic flow with a 50 kph limit reduced pollution by one third but only by six percent with free moving traffic with a 30 kph limit.¹¹

• Previous emissions measurements in real driving conditions highlight discrepancies between the test bench and the road on the one hand, but also prove the enormous average improvements as a result of Euro-6-vehicles compared with Euro-5-vehicles.

• The improvements are also apparent at the measuring stations: At Germany’s most polluted measurement location, Stuttgart’s Neckarstort, the NO₂ hourly limit of 200 µg/m³ in 2005 was exceeded in 848 hours. In 2015 it was only 61 hours¹³, and according to a provisional assessment in 2016, only 35 hours.¹⁴

• What is correct is that on busy roads such as the Neckartor, the annual average value is twice as high as it should be. But inside the building situated directly on the junction, the values are already significantly below the limit.¹⁵

• Testifying to the German Bundestag’s committee of inquiry, it was pointed out that the population spends 70 percent of the day inside buildings. In the main, the indoor air contains higher concentrations of pollutants than the outside air.¹⁶ But debates and calculations of the health risks posed by pollutants in most cases focus solely on the outdoor air.

• The NO₂ limit in Germany in the workplace is 950 µg/m³. The legislator allows people to be exposed to immissions that are 23 times the permitted annual average value for the ambient air for eight hours at a stretch, five days a week.¹⁷ Even if this value only applies for healthy adults, the discrepancy is enormous.

• The fitting of diesel particulate filters as standard has enabled exhaust particulate emissions (PM10) to be slashed. Even at Stuttgart’s Neckartor only seven percent of the particulate immissions measured are at all attributable to combustion engine exhaust gases.¹⁸ The average annual limit of 40 µg/m³ has been complied with since 2011.¹⁹
The USA: Germany’s very important partner

The United States of America are Germany’s most important automotive trading partner, not just as an export target market. After China, the USA are also the German manufacturers’ second-biggest foreign production location. New trade restrictions would therefore only damage both sides.

German manufacturers’ production in the USA

In the past seven years, German manufacturers have quadrupled their light vehicle production there to more than 850,000 new vehicles. Around two thirds of them are destined for markets outside the USA. This means: America is not just a sales market for us but an important pillar of the German automotive industry’s international production network. Concluding additional free trade agreements such as TTIP would boost the attractiveness of both production locations.

110,000 Americans work for the German automotive industry

110,000 Americans already work in the German automotive industry’s US plants, 77,000 with the suppliers, 33,000 with the manufacturers. The suppliers are represented with 265 locations in the USA – three times as many as 20 years ago.

31.2 bn euros of exports to the USA

The US automotive market is also important for employment in Germany. In 2016, Germany exported cars and parts worth 31.2 bn euros to the USA, more than to any other country. It’s true that Great Britain takes more German cars in unit terms. However in the case of US exports, the proportion of high-value, more expensive premium cars is particularly high.

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<th>Most important export target markets by value, units and share of premium</th>
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<td>Exports (in bn euros)</td>
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<td>Italy</td>
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Source: VDA
German cars produced in the US and sold in:

in thousands

US | Canada | Mexico (1.4%) | Rest of the world
---|---|---|---
853,700 | 85.4 | 38.5 | 55.4

Locations of suppliers

Chattanooga
Passat, Atlas

Spartanburg
X1, X4, X5, X6

Tuscaloosa
GLE, GLE Coupe, GLS, C-Class

Charleston (under construction)
New Sprinter (from 2018 onwards)

Employees in the US: 110,000

Locations of OEM

Source: VDA
Automated driving: Current law lays foundation for lead market

The German automotive industry supports the federal government's strategy of making Germany the lead market for networked and automated driving. We anticipate that automated driving will make road traffic safer, more efficient and convenient.

German manufacturers and suppliers therefore endorse the law passed by the German government and Germany's Upper House, the Bundesrat, governing the behavioral regulation of automated driving in the Road Transport Law (StVG). For the first time, the law creates a behavioral underpinning for automated driving – it describes the workable interaction between man and vehicle. The legal system applied, with general legal concepts such as vehicle driver, readiness to take over steering control, proper use and compliance with traffic regulations by the automated systems, creates a framework within which the driver can adapt his behavior once the automated system has been activated. The law therefore creates legal certainty for the driver and other road users. The task then for the automotive industry is to offer its customers safe and efficient automated driving systems.

The law thereby takes account of consumer interests and rightly imposes stringent requirements on the technical systems, thus enabling the safe introduction and development of the technology. Requirements arising from product liability and product safety, both of which are about consumer protection, remain unchanged. The automated driving law will also create greater investment certainty for manufacturers and suppliers when competing internationally.

Compared with the current legal situation, the motorist's driving task can now be lightened. The vehicle owner taking back control of the steering wheel on an automated stretch of road is prescribed when the system summons him to do so or the preconditions for automated driving no longer exist, for example in the event of a blowout. But the driver can make optimal use of the time spent in the vehicle thanks to integrated infotainment systems, for example.

To resolve the liability issue, motor vehicles with automated driving features are to be fitted with a data storage device recording whether the motorist was driving the vehicle himself or using the automated driving function. This data is to be made available to third parties, in particular the police, after an accident.

German manufacturers and suppliers are ready to facilitate vehicles with initial automated systems from 2018 onwards. Automated driving will initially be introduced on motorways because the traffic situation there is not as complex as in the city center: There is no crossing or oncoming traffic, all vehicles are moving in one direction and the structural environment is conducive to being acquired by the vehicle's sensors. We will soon also get to see the first examples of digital, specially equipped, multi-story car parks, in which cars can then park by themselves.

Having said that, these scenarios also require approval regulations at international and national level.

The law does not cover autonomous driving, where a driver is no longer required. This primarily requires international legislatures to be amended, first and foremost the Vienna Convention.
The 67th International Motor Show (IAA) Cars will take place in Frankfurt am Main from September 14–24. It will be opened by Germany’s Chancellor Dr. Angela Merkel.

The leading international trade show for mobility offers an extensive view of new vehicle models and current developments for traffic safety, comfort and environmental and climate protection. Its focus is on further optimizing engines, the newest generation of alternative powertrains, and on automated and networked driving.

An extraordinary platform awaits you with the “New Mobility World”. This is a forum for disruptors, innovators and representatives of the political and economic worlds, to forge the future of mobility across sector boundaries. In addition to the trade fair’s main topics, the spotlight is on urban mobility and mobility services. The IAA specialist events are also dominated by current issues.

The IAA is not only the world’s most important mobility trade show; its supporting program also makes it an important platform for political communication: In addition to the Chancellor, many federal and regional politicians, EU representatives and many other high-ranking international guests are expected.

The VDA is once again offering political office holders and ministry and government authority employees individual tours of the IAA. To find out more about these tours, please contact Tineke Geywitz and Dr. Christoph Muhle from the VDA organizational team at geywitz@vda.de and muhle@vda.de.

You can find more details about the trade show at www.iaa.de and at www.facebook.com/IAAMesse.

Program selection IAA specialist events 2017
(Last updated: Start of May 2017)

Friday, September 15, 2017
· Hessian Mobility Congress
· Taxes in the car sector
· India Day

Monday, September 18, 2017
· Financial Services in the car sector
· Future of the combustion engine

Tuesday, September 19, 2017
· Customs in the car sector
· Joint event with the IG Metall

Wednesday, September 20, 2017
· carIT Congress
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