BMW at the 2009 Frankfurt Motor Show.
Contents.

1. BMW at the 2009 Frankfurt Motor Show. (Summary)

BMW proudly presents the future of Sheer Driving Pleasure: Innovations for the ongoing reduction of fuel consumption and emissions together with a further increase in driving dynamics and performance – these are the highlights of BMW's presentation in the new Fair Hall 11 at the 2009 Frankfurt Motor Show.

Thanks to BMW EfficientDynamics, the world's most successful manufacturer of premium cars has reduced the fuel consumption and CO_2 emissions of its fleet in Europe by more than 25 per cent within just two model generations, at the same time enhancing Sheer Driving Pleasure to an even higher standard than ever before.

At the Frankfurt Motor Show from 15–27 September 2009, BMW is presenting new models and future-oriented concepts providing all the features and technologies for an ongoing process of development into the future.

BMW EfficientDynamics is already a standard feature in every new BMW setting the foundation for a wide range of innovations for even lower emissions and even greater driving pleasure in the years and decades to come. The BMW Vision EfficientDynamics concept car, for example, being presented to the world public for the first time at the 2009 Frankfurt Motor Show, clearly represents the objectives and the potentials of this development strategy in concentrated form. Indeed, this car reduces both energy consumption and CO_2 emissions in an unusually effective manner, all the way to an absolutely clean motoring experience without using even the smallest amount of fossil fuel. And at the same time it offers all the performance of a thoroughbred sports car.

This outstanding concept car comes with the widest range of BMW EfficientDynamics technologies ever seen, extending from the combustion engine with its outstanding efficiency through intelligent energy management and BMW ActiveHybrid technology with innovative electric storage technology all the way to lightweight engineering and consistently optimised aerodynamics.

These many features of BMW EfficientDynamics are also to be found in individual combinations on BMW's various production models, the 2009 Frankfurt Motor Show providing the venue for the world debut of BMW's first hybrid production cars. The BMW ActiveHybrid 7 Luxury Saloon and the

BMW ActiveHybrid X6 Sports Activity Coupé, for example, use an intelligent combination of the combustion engine and electric drive tailored specifically to each model to provide both an exceptional driving experience and truly impressive efficiency all in one.

BMW offers innovative and trendsetting opportunities to enjoy Sheer Driving Pleasure at its best also in two other world debuts: The BMW X1 is the first car to carry over the features and characteristics of a BMW X model into the compact premium segment and, in an equally unique manner, the BMW 5 Series Gran Turismo combines generous and luxurious space and outstanding function with a truly stylish and elegant look.

The new Fair Hall 11: the ideal venue for Sheer Driving Pleasure.
At the 2009 Frankfurt Motor Show BMW is introducing a new style of vehicle presentation impressively turning the motive of Sheer Driving Pleasure into reality: The new models are presented in an active driving environment on a circuit several hundred metres in length and encompassing the entire exhibition area. For the first time this enables visitors to experience the design and the actual look of the cars presented in motion.

This exceptional presentation of Sheer Driving Pleasure is only possible at BMW's new venue at the Frankfurt Show in Fair Hall 11. The new building is very easy to reach by visitors directly from the new Main Entrance to the Frankfurt Fairgrounds. On the ground floor of the most modern fair hall in Europe the BMW Group has more than 12,000 square metres or almost 130,000 square feet of exhibition area at its disposal, for the first time providing the facilities required for the BMW, MINI and Rolls-Royce brands making a joint presentation under one roof at the world's leading car exhibition.

The BMW Group is combining the joint presentation of the three brands with a wide range of initiatives. Hosting the ZEIT Conference, for example, the BMW Group is providing a forum for discussing issues of sustainability and other topics of overriding significance to society. Immediately adjacent to Hall 11, the Junior Campus offers children from 3–13 the opportunity, as the youngest visitors to the Frankfurt Motor Show, to discover the fascinating world of mobility and sustainability.

BMW Vision EfficientDynamics: looking into the future of efficiency and driving pleasure.

Proudly presenting the BMW Vision EfficientDynamics concept car, BMW proves that the targets of the BMW EfficientDynamics development strategy are by all means able to meet the even stricter fuel economy and emission standards required for the future.

Conceived as a plug-in car with full-hybrid technology, this 2+2-seater offers all the opportunities to combine the performance of a BMW M Car with fuel economy and emission figures even better than on the latest small cars today.

BMW Vision EfficientDynamics is the result of an all-round development process borne out clearly through the emotional design of this unique concept car – a sports car offering a fascinating outlook into the future of Sheer Driving Pleasure in full harmony with supreme efficiency.

The drive technology featured in BMW Vision EfficientDynamics propels the car up to an electronically limited top speed of 250 km/h or 155 mph, with acceleration from a standing start to 100 km/h in 4.8 seconds. Average fuel consumption in the EU test cycle is 3.76 litres/100 kilometres (equal to 75.1 mpg imp), with a CO_2 rating of 99 grams per kilometre.

The CO_2 balance is even better when driving on electric power alone after charging the battery through the plug-in connection: Taking emissions in the EU mix during generation of electric power into account, the emission rating in this case is an even more remarkable 50 grams per kilometre.

To obtain comparable data on CO_2 emissions when driving in the electric mode, new legal standards for the measurement of fuel consumption on hybrid and electric cars are currently being prepared. Applying this mode of calculation, the CO_2 emissions generated by BMW Vision EfficientDynamics drop to just one-third of the original figure of 99 grams per kilometre.

Power of three drive units intelligently combined.

This outsatnding performance and fuel economy is made possible by the combination of a highly fuel-efficient three-cylinder turbodiesel with a hybrid synchronous motor on the front axle and a full-hybrid system at the rear. Intelligently combining the power of the three drive units through precisely controlled energy management, both performance and efficiency are enhanced to an unprecedented standard, making maximum use of the potential of BMW ActiveHybrid technology to reduce the level of consumption. Overall system output is 262 kW/356 bhp, maximum torque 800 Newton-metres/590 lb-ft.

The three-cylinder turbodiesel displaces1.5 litres following the principle of downsizing, the potential of a relatively small engine being used in conjunction with turbocharging to consistently reduce emissions.

Thanks to its compact dimensions the three-cylinder fits conveniently in front of the rear axle like in an agile mid-engined sports car, despite the two seats at the rear.

The engine features the latest generation of common-rail direct fuel injection as well as a turbocharger with variable intake geometry. Maximum output is 120 kW/163 hp, with torque peaking at 290 Newton-metres or 214 lb-ft.

In overrun and when applying the brakes, the electric motor fitted on the rear axle acts as a generator feeding electric power into the car's lithium-polymer battery. As a result, this electrical energy is generated without any additional consumption of fuel.

The driver also has the option to charge the car's electric battery from a conventional power socket. On the usual household electric mains (220 V, 16 Amps) the charge process takes a maximum of 2 1/2 hours. Wherever a power socket with higher voltage and amperage (380 V, 32 Amps)is available, the charge time is reduced to a maximum of 44 minutes.

The energy storage units are housed in a central chassis element extending along the middle of the car.

In all, no less than 98 lithium-polymer cells are fitted on board BMW's new concept car, with the fuel tank offering a capacity of 25 litres or 5.5 imp gals housed at the rear end of the chassis tunnel. This amount of diesel fuel gives BMW Vision EfficientDynamics a cruising range in the combustion mode of approximately 650 kilometres or 400 miles. Adding the range of up to 50 kilometres or 31 miles in the all-electric mode, the car is able to cover a distance of approximately 700 kilometres or more than 430 miles.

Technology-oriented design as a clear expression of intelligent lightweight technology.

BMW Vision EfficientDynamics also takes a brand-new approach in terms of its design. For since the principle of „form follows function" is not limited in this case to the overall look and configuration of the car, but rather applies to each individual detail, BMW Vision EfficientDynamics comes with a truly unique aesthetic look.

Measuring 4.60 metres or 181.1" in length, 1.90 metres or 74.8" in width and 1.24 metres or 48.8" in height, BMW's new concept car offers space for up to four passengers together with their luggage. The consistent lightweight strategy nevertheless limits the unladen weight of the car according to the DIN standard to just 1,395 kg or 3,076 lb, at the same time allowing a low centre of gravity highly beneficial in terms of motoring comfort and driving dynamics.

Taking the use of hybrid drive components as well as the high-capacity lithium-polymer battery into account, this figure alone clearly proves the strengths of the overall concept focusing consistently on efficiency. In terms of its power-to-weight ratio, the BMW Vision EfficientDynamics concept car is far superior to all hybrid vehicles so far.

With the combustion engine fitted in front of the rear axle, the designers were able to make the front end of the car very low, sleek and dynamic.

Vehicle concept providing a drag coefficient of just 0.22.
Numerous body elements on BMW Vision EfficientDynamics serve as air guide vents optimising the aerodynamic qualities of the car. The A-pillars designed as a duct, for example, serve, just like the rear lights designed as a wing profile, to channel and smoothen the flow of air.

The underfloor of the car is fully covered, slender openings around the front-air dam guiding incoming air directly into two closed ducts. These, in turn, lead along the inside of the front air dam to the wheel arches, where the air coming out is guided through a very slender opening past the outer wheel flanks at high speed. With this air jet wrapping itself around the front wheels like a curtain, it is referred to appropriately as the air curtain.

To further optimise the aerodynamic qualities of the car and at the same time to keep roll resistance to a minimum, BMW Vision EfficientDynamics comes with tyres and rims in dimensions quite unusual for a sports car: The tyres have a width:height ratio of 195/55, while the large 21-inch rims provide the same contact surface on the road as with a much wider tyre. In combination with the elaborate axle kinematics, this ensures very agile driving behaviour at all times.

The final result of these improvements for optimising the car's aerodynamic qualities is a very low drag coefficient C_X of just 0.22.

Gullwing doors for easy access to all seats.
The doors on BMW Vision EfficientDynamics open up like gullwings, turning on pivots on the front roof column near the side direction indicators. Since the car intentionally has no B-pillar, the large door cutouts ensure easy access also to the seats at the rear, the hinges on the doors serving in an ideal combination in terms of both function and aesthetic looks also as the base for the exterior mirrors.

Emotional design ensured by sculptural shapes and layering technology.
The proportions of a sports car so typical of BMW are presented in sculptural design language giving the concept car a perfect look as if from one mould. The front, side, rear and roof of the car flow smoothly into one another, dynamically twisted surfaces and shapes creating highly attractive light and shade effects accentuating the light and sporting character of the car in a most emotional manner.

Special layering technology developed by the BMW Group Design Division serves as the central motif in designing the exterior and interior – a principle applied for the first time in both interior and exterior design to layer individual surfaces on top of one another and arrange the joints on the car appropriately in order to reduce the number of components and, accordingly, the weight of the car.

Always focusing on the essential: three-dimensional Head-Up Display.
Layering technology is also used on the displays in the instrument cluster and on the enhanced Head-Up Display in BMW Vision EfficientDynamics. This creates an impression of three-dimensionality, also enabling the driver to adjust various signals in accordance with their relevance and driving conditions, presenting the information required either more in the foreground or in the background.

With the individual system components on board BMW Vision EfficientDynamics being networked with one another, the car is able to offer a forward-looking system of energy management using information compiled by the sensors on the car's driver assistance systems. Data gathered for example by the rain sensor or Active Cruise Control with Stop & Go as well as the navigation system, which is subsequently evaluated by the central control unit, offers an indication of current and upcoming driving conditions.

BMW's model range in autumn 2009:
superior efficiency in all vehicle segments.
Throughout the wide range of production models, BMW is continuing its strategy in autumn 2009 to increase the number of particularly fuel-efficient low-emission vehicles. Hence, the number of BMW's complying with the EU5 emission standard is increasing to no less than 90 in autumn of this year. At the same time BMW is strengthening its leading position in the advance fulfilment of the EU6 emission standard not coming into force until 2014.

Again a step ahead: BMW 320d EfficientDynamics Edition.
As a new model accompanying the „regular" BMW 320d, the highly innovative BMW 320d EfficientDynamics Edition is being presented for the first time at the 2009 Frankfurt Motor Show. This cutting-edge saloon combines fuel consumption of just 4.1 litres diesel/100 kilometres (equal to 68.9 mpg imp) with a CO_2 emission rating of 109 grams per kilometre in the EU test cycle and engine output of 120 kW/163 hp.

Introducing this revolutionary new model, BMW is further enhancing its leading position in the development of particularly clean and, at the same time, dynamic models.

The BMW 320d EfficientDynamics Edition is the most fuel-efficient and lowest-emission car in BMW's current model range. It offers unparalleled qualities in the premium midrange segment for the customer focusing increasingly on outstanding economy and wishing to preserve the environment without foregoing the dynamic driving characteristics so typical of a BMW.

The BMW 320d EfficientDynamics Edition is powered by a four-cylinder diesel optimised specifically for even greater fuel efficiency and emission management in the interest of supreme all-round economy. The power unit is a 2.0-litre four-cylinder with an all-aluminium crankcase, turbocharging and the latest generation of common-rail fuel injection also featured with various power stages in the BMW 316d, the BMW 318d, and the BMW 320d.

Innovative use of a centrifugal force pendulum in the two-mass flywheel, combined with a longer final drive ratio, serves to significantly reduce engine speed in all speed ranges relevant in practice.

The extra comfort provided by the centrifugal force pendulum in the two-mass flywheel will urge the driver to use a higher gear more often or not to shift back in the first place. But at the same time the BMW 320d EfficientDynamics Edition offers all the performance and agility so typical of the brand, above all

when accelerating. Indeed, driving dynamics BMW-style is expressed among other things by the car's acceleration to 100 km/h in just 8.2 seconds and top speed of 225 km/h or 140 mph.

The BMW 320d EfficientDynamics Edition comes with the complete package of technologies offered by BMW EfficientDynamics already featured as standard on the other models in the BMW 3 Series. Together with further innovations enhancing efficiency to an even higher standard, such as the longer final drive ratio, a lower suspension and newly developed Aero wheel rims in turbine wheel design, and interacting with the reduction in engine power by 10 kW/14 hp versus the „regular" BMW 320d, these technologies reduce emissions even further, below the CO_2 limit of 110 grams per kilometre.

Last but not least, the BMW 320d EfficientDynamics Edition is also equipped with a diesel particulates filter close to the engine and naturally fulfils the EU5 emission standard.

New entry-level diesel in the BMW 3 Series.
The BMW 316d offers a particularly high standard of all-round economy combined with the driving pleasure so typical of BMW in the fiercely contested midrange segment. This highly efficient saloon is powered by a 2.0-litre four-cylinder diesel with a turbocharger and common-rail fuel injection, developing maximum output of 85 kW/115 hp and peak torque of 260 Newton-metres/192 lb-ft at 1,750 rpm. The BMW 316d also proves outstanding agility in accelerating from a standstill to 100 km/h in 10.9 seconds and reaching a top speed of 202 km/h or 125 mph. At the same time the car sets a new standard in fuel efficiency, with average consumption in the EU test cycle of 4.5 litres/100 kilometres (equal to 62.8 mpg imp) and a CO_2 emission rating of 118 grams/kilometre, the BMW 316d therefore outperforming even the BMW 118d lauded as the World Green Car of the Year 2008. And naturally, the BMW 316d complies in full with the EU5 emission standard.

Sports Activity Vehicle with superior efficiency: the BMW X3 xDrive18d.
Introducing a new entry-level version of the BMW X3, the world's most successful manufacturer of all-wheel drive premium cars is once again setting a new standard of efficiency in a Sports Activity Vehicle. The BMW X3 xDrive18d is powered by a 2.0-litre four-cylinder diesel delivering maximum output of 105 kW/143 hp. Peak torque of 350 Newton-metres/258 lb-ft developed at just 1,750 rpm, in turn, gives the car impressive muscle and acceleration, the new BMW X3 xDrive18d reaching 100 km/h from a standstill in just 10.3 seconds and offering a top speed of 195 km/h or 121 mph.

Average fuel consumption of this entry-level model into the range is 6.2 litres/100 kilometres, equal to 45.6 mpg imp, with a CO_2 emission rating of 165 grams per kilometre, again in the EU test cycle. And last but again not least, the BMW X3 xDrive18d naturally fulfils the EU5 emission standard.

All variants of the BMW X3 are available with the new, extra sporting M Exterior Package as an option. This includes the front and rear air dam from the M Aerodynamics Package for the X3 Sports Activity Vehicle as well as side-sills with black wheel covers.

Economic driving pleasure in the compact segment:
Sport and Lifestyle Edition Models of the BMW 1 and 3 Series three- and five door, new BMW 120i Coupé and BMW 118d Coupé.
Apart from outstanding efficiency and the driving pleasure typical of the brand, innovative features and premium quality give the BMW 1 Series a truly unique position in its segment. The new Lifestyle and Sport Edition Models enhance these characteristics to an even higher level, offering an attractive range of sophisticated and fully-harmonised model features and equipment. All engine variants of both the three-door and the five-door are available as Edition Models.

Two additional, particularly economical low-emission engine variants will be upgrading the BMW 1 Series Coupé model range as of September 2009, naturally both fulfilling the EU5 emission standard: The new BMW 120i Coupé is powered by a 2.0-litre four-cylinder with direct gasoline injection, delivering maximum output of 125 kW/170 hp and peak torque of 210 Newton-metres/ 155 lb-ft at 4,250 rpm. This accelerates the BMW 120i Coupé from a standstill to 100 km/h in just 7.8 seconds, while at the same time the car makes do with average fuel consumption in the EU test cycle of just 6.6 litres/100 kilometres (CO_2 emission rating 153 grams per kilometre).

The new BMW 118d Coupé the most efficient car of its kind. Displacing 2.0 litres, the engine develops 105 kW/143 hp and maximum torque of 300 Newton-metres/221 lb-ft.

Acceleration from a standstill to 100 km/h in the BMW 118d Coupé comes in 9.0 seconds. With average fuel consumption in the EU test cycle of 4.5 litres/ 100 kilometres (equal to 62.8 mpg imp) and a CO_2 rating of 119 grams per kilometre, this compact athlete also offers outstanding economy and clean emissions.

An attractive entry into the upper midrange: the BMW 520d Special Edition.

Driving pleasure, superior comfort, powerful design and innovative technology characterise the outstanding position of the BMW 5 Series in the upper midrange segment. The BMW 520d Special Edition available in both Saloon and Touring guise, combines the lowest consumption and emission figures in its segment, as well as the EU5 emission standard, with a wide range of features and equipment.

The BMW 520d Special Edition is powered by a 2.0-litre four-cylinder diesel engine delivering maximum output of 120 kW/163 hp and peak torque of 350 Newton-metres/258 lb-ft.

The BMW 520d Special Edition proves its outstanding efficiency through fuel consumption in the EU test cycle of 5.1 litres/100 kilometres/55.4 mpg imp (Touring: 5.3 litres/53.3 mpg imp) and a CO_2 rating of 136 grams per kilometre (Touring: 140 grams).

The wide range of features already offered on the BMW 520d as such is further enhanced on this model by a number of items for even greater motoring comfort. As an example, the BMW 520d Special Edition comes with seat heating at the front, Park Distance Control and entry trim bars bearing the name „Edition“. A further feature is automatic air conditioning with an even wider range of individual functions. And last but certainly not least, the Saloon comes with through-loading including a ski-bag, the Touring is equipped with a roof railing.

New diesel engine, BMW BluePerformance fulfilling the EU6 standard, xDrive making its debut in the BMW 7 Series.

Following the successful launch of the new BMW 7 Series, BMW is further upgrading the position of this outstanding model series as the most innovative car in the luxury performance segment. The BMW 740d launched in autumn 2009, for example, comes for the first time with a new straight-six diesel engine featuring BMW TwinPower Turbo technology.

Including the new top-of-the range BMW 760i and BMW 760Li with their twelve-cylinder power units, the BMW 7 Series now comes with a choice of no less than three gasoline and two diesel variants.

The BMW 740d features a newly developed six-cylinder introduced on this model for the first time. This all-aluminium power unit comes with BMW TwinPower Turbo technology as well as common-rail direct fuel injection, with piezo-injectors operating at an injection pressure of up to 2,000 bar. The charge system itself follows the Variable Twin Turbo principle.

The new power unit develops maximum output of 225 kW/306 hp and peak torque of 600 Newton-metres/442 lb-ft maintained consistently between 1,500 and 2,500 rpm. This accelerates the BMW 740d to 100 km/h in 6.3 seconds, with the car's top speed limited electronically to 250 km/h or 155 mph.

Average fuel consumption of 6.9 litres/100 kilometres in the EU test cycle, equal to 40.9 mpg imp (CO_2 emission rating of 181 grams per kilometre), sets new benchmarks in terms of efficiency in this power and performance range.

As the first cars in their segment, the BMW 730d and the BMW 730Ld luxury performance saloons are now also available as an option with BMW BluePerformance technology. As a result, exhaust management on the new180 kW/245 hp six-cylinder diesel already fulfils the requirements also in terms of nitric oxides not coming into force until the introduction of the EU6 emission standard in 2014.

On the BMW 730d and the BMW 730Ld with BMW BluePerformance, the diesel particulates filter and the oxidation catalyst likewise featured as standard are supplemented by a NOX storage catalyst not requiring any maintenance or any additional operating media throughout the entire lifecycle of the car.

The introduction of BMW BluePerformance does not have the slightest influence on fuel economy and CO_2 management, which are indeed reduced to an even lower level than before: Modifications on the engine and drivetrain reduce average fuel consumption of the BMW 730d, as measured in the EU test cycle, to 6.8 litres/100 kilometres, equal to 41.5 mpg imp (BMW 730Ld: 6.9 litres/40.9 mpg imp), with the CO_2 emission rating dropping to 178 grams per kilometre (BMW 730Ld: 180 grams).

BMW's intelligent xDrive all-wheel-drive system is also available as of the 2010 model year for the first time on the BMW 7 Series. In the BMW 750i xDrive and the BMW 750Li xDrive, permanent-electronically controlled all-wheel drive ensures appropriate distribution of the 300 kW/407 hp delivered by the V8 power unit with BMW TwinPower Turbo technology at all times and in every situation.

Such precise and quick power management gives this outstanding luxury performance saloon incomparably superior and very safe driving behaviour at all times. In bends more drive power is fed to the rear axle to make the car more nimble and agile.

With the BMW 750i xDrive and the BMW 750Li xDrive both fitted as standard with electronic DynamicDrive stability control, the driver and passengers are able to enjoy the enhanced agility of these outstanding saloons in particularly comfortable style.

Maximum protection: the new BMW 7 Series High Security.
The new generation of high-security saloons based on the BMW 7 Series meets the greatest demands in terms of individual, personal protection of endangered persons in an automobile. The BMW 760Li High Security and the BMW 750Li High Security are the first cars in the world to be certified according to the BRV 2009 ballistic directive and both models qualify for the new Class 7 Resistance Category. Indeed, the non-transparent parts of the body, due to their particularly effective armament, even meet the requirements of Resistance Category 9 on both the BMW 760Li High Security and the BMW 750Li High Security.

These luxury saloons represent the highest standard of safety in the area of individual mobility – combined with equally unparalleled grand touring comfort, superior drivetrain technology and a wide range of innovative features making a decisive contribution to supreme driving conditions under all circumstances.

Extra-strong, vehicle-specific special steel armament as well as newly developed security glazing offers supreme protection above all in the passenger cell of the BMW 760Li High Security and the BMW 750Li High Security from all kinds of attacks. A further point is that the drivetrain and suspension technology tailored precisely to the weight and centre of gravity of these two special saloons provides ideal conditions for safely mastering even extremely challenging driving situations and escaping from danger.

Greater efficiency, enhanced supremacy, more luxury: the BMW ActiveHybrid 7.
At the 2009 Frankfurt Motor Show BMW is presenting the most supreme and luxurious way to enjoy hybrid technology in an automobile: the BMW ActiveHybrid 7. Based on the BMW 7 Series, this unprecedented saloon sets a new benchmark for efficiency in the luxury class.

The BMW ActiveHybrid 7 is the first car in the world to combine a V8 gasoline power unit, an eight-speed automatic transmission and an electric motor in a mild-hybrid concept. The combination of such a highly developed eight-cylinder featuring BMW TwinPower Turbo technology and High Precision Injection with a three-phase synchronous electric motor gives the BMW ActiveHybrid 7 overall system output of 342 kW/465 hp and maximum torque of 700 Newton-metres/516 lb-ft. Power is transmitted by an eight-speed automatic transmission.

The electric motor fitted in compact arrangement between the combustion engine and the converter on the automatic transmission receives its energy from a lithium-ion battery developed specially for the automobile.

Precisely controlled interaction of the two power sources serves to optimise not only the efficiency, but also the driving dynamics and motoring comfort offered by the BMW ActiveHybrid 7. As a result, the BMW ActiveHybrid 7 accelerates from a standstill to 100 km/h in just 4.9 seconds, with average fuel consumption in the EU test cycle of 9.7 litres/100 kilometres (equal to 29.1 mpg imp) and a CO_2 emission rating of 225 grams per kilometre.

Hybrid technology also offers new opportunities to provide additional comfort functions with superior efficiency. As an example, the BMW ActiveHybrid 7 is the first BMW with automatic transmission to feature an Auto Start Stop function preventing the engine from idling when coming to a stop at road junctions or in congested traffic. And for the first time the air conditioning and ventilation may remain operating even with the engine switched off, receiving electric power, like the electric motor itself, from the lithium-ion battery. This concept of energy management also ensures effective climate control through the auxiliary system when the car is not moving.

BMW ActiveHybrid technology uses energy converted on conventional vehicles into brake heat escaping unused from the car. Apart from overrun conditions, particularly the application of the brakes is used even more thoroughly in the BMW ActiveHybrid 7 to generate electrical energy.

In all, the recuperation capacity of the BMW ActiveHybrid 7 is eight times higher than on a BMW with Brake Energy Regeneration driven exclusively by a combustion engine.

Lithium-ion battery supplying power to the electric motor and the on-board network.

Electric power generated in the BMW ActiveHybrid 7 while the car is running in overrun or under application of the brakes, that is without the slightest increase in fuel consumption, is fed as required into the two on-board networks of the car. In all, the BMW ActiveHybrid 7 comes with a conventional 12 V on-board network supplied with power by an AGM (Absorbent Glass Mat) battery as well as a high-voltage battery featuring lithium-ion technology fitted in compact arrangement in the luggage compartment and operating at a voltage of 120 V.

The eight-cylinder power unit featured in the BMW ActiveHybrid 7 develops maximum output of 330 kW/449 hp at an engine speed from 5,500–6,000 rpm. Maximum torque of this superior V8 is 650 Newton-metres/479 lb-ft maintained consistently between 2,000 and 4,500 rpm.

The dynamic response provided by this kind of power is further enhanced by the additional drive power generated by the electric motor. In less dynamic driving situations this additional power allows the combustion engine to run in a more favourable – that is, more efficient – load range, thus optimising its all-round efficiency and motoring refinement.

Special displays in the instrument cluster and the Control Display give the driver information on the current efficiency and operating conditions of the hybrid components. Nineteen-inch light-alloy rims in aerodynamically optimised turbine wheel design created exclusively for the BMW ActiveHybrid 7 as well as model designations on the luggage compartment lid, the C-pillars behind the side windows and on the entry trim strips serve to visually distinguish the hybrid cars, referring to their very special technology.

The first BMW luxury performance saloon with hybrid drive is entering the market in two body variants: The long-wheelbase BMW ActiveHybrid 7 comes with a wheelbase extended by 14 centimetres or 5.5" benefiting entirely the space available at the rear.

The thrill of efficiency: the BMW ActiveHybrid X6.

Parallel to the introduction of the BMW ActiveHybrid 7, BMW is also presenting the BMW ActiveHybrid X6 as another special rendition of BMW ActiveHybrid technology at the 2009 Frankfurt Motor Show. The world's first Sports Activity Coupé with full-hybrid drive capitalises in an unprecedented manner on the potentials offered by the combination of a combustion engine and an electric motor. The drive system is a 300 kW/407 hp V8 with BMW TwinPower Turbo

technology and two electric synchronous motors developing 67 kW/91 hp and, respectively, 63 kW/86 hp. Maximum system output is 357 kW/485 hp, peak torque is 780 Newton-metres/575 lb-ft.

Precisely controlled interaction of these three power units optimises the overall efficiency of BMW ActiveHybrid X6 in all speed ranges.

BMW ActiveHybrid X6 accelerates to 100 km/h in 5.6 seconds and its top speed is limited electronically to 236 km/h or 146 mph (250 km/h or 155 mph in combination with the optional Sports Package). Average fuel consumption in the EU5 test cycle is 9.9 litres/100 kilometres, equal to 28.5 mpg imp, and the CO_2 rating is 231 grams per kilometre.

BMW's first full-hybrid model is able to drive entirely under electric power and therefore free of CO_2 up to speed of 60 km/h or 37 mph, the combustion engine automatically cutting in whenever required. The two-mode active transmission, in turn, provides the ideal combination of the two sources of drive power required for an even higher level of both efficiency and driving dynamics. Through the two electric motors, three planetary gearsets and four multiple-plate clutches, drive power is conveyed in the same way as with a seven-speed automatic transmission. Intelligent xDrive all-wheel-drive technology spreads out the power of the engine variably between the front and rear wheels.

The electric motors draw their energy from an NiMH high-performance battery fitted beneath the floor of the luggage compartment and supplying electric power also to the car's on-board network. When applying the brakes or taking back the throttle, kinetic energy is converted into electrical energy and saved in the high-performance battery. To perform this function either one or both of the electric motors, depending on driving conditions, acts as a generator feeding electric power developed without any additional consumption of fuel into the high-voltage battery.

The power generated in this process is about 25 times greater than the power developed so far by Brake Energy Regeneration in its „standard" form.

Electric motors for additional performance and electric power generated without any additional consumption of fuel.
In the generator mode the two electric motors provide a significant share of the brake power required to slow down the car. With the electric brake system stopping forces of up to 3 metres/sec² or, respectively, 0.3 g may be achieved in a purely recuperative mode. Clearly, this takes a significant load off the mechanical brake system.

The hybrid system on BMW ActiveHybrid X6 is able to convey brake forces through the xDrive drivetrain to all four wheels, developed by the stopping power of the electric motors with their recuperative function. Wherever the brake power required exceeds the figure of 3 metres/sec², the control unit, using the active brake force booster, generates additional brake power through the mechanical brake.

The two-mode active transmission is based on an ECVT (electric continuously variable transmission) operating in two power-split modes. One mode is specifically for setting off with particularly dynamic power and for low speeds, the second mode is for driving at higher speeds.

From outside the BMW ActiveHybrid X6 differs in only a few details from its counterparts with a conventional drivetrain. Apart from hybrid-specific displays in the instrument cluster, entry trim bars bearing the designation „BMW ActiveHybrid“ on the driver's and front passenger's side make clear reference to the special nature of this vehicle.

Further features clearly distinguishable from outside are the Powerdome on the engine compartment lid as well „ActiveHybrid“ designations on the special tailgate trim bar and on the front doors, again highlighting the particular character of this vehicle.

Spontaneous driving pleasure: the BMW X1.
For the first time the typical features of a BMW X model are now available in a premium compact car, the BMW X1 entering the market to provide a new rendition of that Sheer Driving Pleasure so typical of BMW also in this class.

The BMW X1 offers a combination of versatile sportiness and supreme agility in urban traffic and beyond. In its looks it ensures the prefect rendition of self-confident elegance, sophisticated function and modern style.

With its drivetrain technology also featuring BMW's intelligent xDrive all-wheel-drive system and its both modern and variable interior, the BMW X1 offers ideal qualities for truly versatile mobility with a new experience at the wheel. The elevated seating position and the driver-oriented cockpit support the emotional experience offered by the BMW X1.

Benefiting from BMW EfficientDynamics, the BMW X1 also offers the best balance of performance and fuel consumption in the entire segment of BMW X models.

The range of engines available for the BMW X1 comprises one six-cylinder gasoline power unit and two four-cylinder diesel engines. The straight-six featured in the BMW X1 xDrive28i comes with a composite magnesium-aluminium crankcase, VALVETRONIC and double-VANOS, delivering maximum output of 190 kW/258 hp. The BMW X1 xDrive23d, in turn, is powered by a 150 kW/204 hp diesel with BMW TwinPower Turbo technology and common-rail fuel injection.

The diesel engines available for the BMW X1 – the BMW X1 xDrive20d with 130 kW/177 hp and the BMW X1 xDrive18d with 105 kW/143 hp – likewise come with common-rail fuel injection and a turbocharger with variable intake geometry. Also featured in the BMW X1 sDrive20d and, respectively, the BMW X1 sDrive18d, these highly efficient diesel power units, combined with rear-wheel drive, offer average fuel consumption in the EU test cycle of just 5.2 litres/100 kilometres (equal to 54.3 mpg imp) and a CO_2 rating of 136 grams per kilometres in the BMW X1 sDrive18d as the most efficient rendition of spontaneous driving pleasure. Clearly, all versions of the BMW X1 comply in full with the EU5 emission standard.

Measuring 4.45 metres or 175.2" in length, the five-door BMW X1, despite its smaller dimensions versus the BMW X6, the BMW X5 and the BMW X3, is clearly recognisable from every angle as a BMW X model.

A large number of open storage spaces and boxes, cupholders on the centre console as well as large, open door compartments with integrated holders for bottles underline the functional character of the BMW X1. The extra-large rear seat bench offers comfortable space for up to three passengers, easy loading is ensured through the large tailgate, the wide luggage compartment opening and the low loading sill, even with bulky objects.

With the rear-seat backrest being adjustable for angle, the vertical backrest position increases luggage compartment capacity from 420 to 480 litres (14.7–16.8 cubic feet). At the same time the backrest in its 40/20/40 split offers further variation options, with loading space increasing if necessary to a maximum of 1,350 litres or 47.3 cu ft.

BMW xDrive: intelligent all-wheel drive featured for the first time in the compact segment.
Variable distribution of drive power between the front and rear wheels through the BMW xDrive permanent all-wheel-drive system enhances both agility and superior traction on loose surfaces. And now this intelligent all-wheel drive is available for the first time in a compact vehicle.

A new dimension: the BMW 5 Series Gran Turismo.
Introducing a truly innovative vehicle concept, BMW is setting fascinating highlights in the upper midrange segment.

As the world's first car in a new segment, the BMW 5 Series Gran Turismo combines the essential features of a prestige Saloon, a modern Sports Activity Vehicle and a classic Gran Turismo. Stylish and elegant in design, this unique four-door comes with a coupé-like stretched roofline, proportions typical of BMW, four doors with frameless windows, and a two-piece tailgate. The spacious interior, in turn, offers luxurious comfort, a slightly elevated seating position for comfortable access and a superior view of traffic conditions, as well as an impressive level of all-round variability.

As its name indicates, the BMW 5 Series Gran Turismo is simply ideal for a wonderful travel experience. The luxurious ambience offers spontaneous well-being, legroom on the rear seats is the same as in the BMW 7 Series, headroom the same as in the BMW X5. The angle of the rear-seat backrests, in turn, adjusts individually to meet the personal requirements and preferences of the passengers.

A unique driving experience is ensured by the most powerful and efficient engines, Dynamic Drive Control featured as standard, the most advanced suspension technology, and innovative driver assistance systems.

The drivetrain technology also comes with a wide range of innovations. One highlight is the brand-new straight-six in the BMW 535i Gran Turismo for the first time combining a turbocharger, direct gasoline injection, and fully variable VALVETRONIC valve management. The 3.0-litre BMW TwinPower Turbo, on the other hand, develops maximum output of 225 kW/306 hp and maintains peak torque of 400 Nm/295 lb-ft consistently all the way from 1,200–5,000 rpm.

The top engine in the range is the V8 with TwinPower Turbo and High Precision Injection featured in the BMW 550i Gran Turismo, offering maximum output of 300 kW/407 hp. The BMW 530d Gran Turismo, in contrast, offers particular highlights in terms of economy, offering average fuel consumption of just 6.5 litres/100 kilometres (equal to 43.5 mpg imp) in the EU mode (CO_2 emission rating 173 g/km).

All the engines in the range naturally comply in full with the EU5 emission standard. In addition, all variants of the BMW 5 Series Gran Turismo come with an innovative eight-speed automatic transmission offering an extremely fast gearshift and supreme efficiency all in one.

The interior: generous space and individual luxury.
The unique experience of space and grace within the BMW 5 Series Gran Turismo is further enhanced by appropriate shapes, colours and materials. The dashboard is split horizontally and boasts a high-tech cockpit with Black Panel technology as well as a Control Display up to 10.2 inches in size for the iDrive control system.

Both the driver and passenger benefit from the slightly elevated seating position, with two single seats at the rear being available as an alternative to the three-passenger rear seat bench featured as standard in the BMW 5 Series Gran Turismo.

Superior convenience and variability when loading and unloading the car is provided by the two-piece rear lid featured for the first time on a BMW. The tailgate is made up of a small opening beneath the rear window and a large opening like on BMW's X Models, both of which open individually, separately from one another.

In standard configuration storage capacity is 440 litres or 15.4 cubic feet. Moving the rear seats to the front and releasing to the bulkhead, luggage capacity increases to 590 litres or 20.7 cubic feet. And with the rear seat backrest as well as the bulkhead folded down completely, the capacity available is no less than 1,700 litres or 59.5 cubic feet for maximum requirements.

The modern suspension technology featured in the BMW 5 Series Gran Turismo ensures a wonderful feeling of well-being, supremacy and safety under all kinds of driving conditions. As an alternative to the hydraulic rack-and-pinion steering with Servotronic featured as standard, the BMW 5 Series Gran Turismo is also available with Integral Active Steering. A further option is Adaptive Drive combining electronically controlled dampers and active anti-roll stability control.

Supreme performance and exclusive style: the BMW M3 Edition models and the BMW M6 Competition Limited Edition.
Based on the BMW M3 Coupé, no less than four individually designed and appointed Edition Models of the BMW M3 now cater for the true individualist, offering carefully matched modifications of body design and within the interior as well as purpose-designed light-alloy rims and a lowered suspension. The BMW M3 Edition Models are available worldwide in Alpine White, Black, Dakar Yellow and Monte Carlo Blue, with a production period limited to 6 months.

Yet another very special model to be admired for the first time at the 2009 Frankfurt Motor Show is the new BMW M6 Competition Limited Edition. Boasting appropriate modifications to its suspension, this high-performance coupé offers an even higher standard of driving dynamics and stylish exclusivity borne out through BMW Individual matt paintwork in Frozen Grey metallic and by the personalised interior.

The customer opting for this very special car has the choice of two colour worlds with the BMW Individual Merino all-leather upholstery.

The BMW M6 Competition Limited Edition is being built in a very small and exclusive production run of just 100 units.

Debut: BMW Performance Power Kit for the four-cylinder diesel models.
With the range of BMW Performance being consistently enlarged, an increasing number of customers now have the opportunity to enhance the driving experience in their BMW, enjoying and expressing their particular style of sports motoring.

At the 2009 Frankfurt Motor Show BMW is for the first time presenting a Performance Power Kit for the brand's four-cylinder diesel models. Like the BMW Performance Power Kit for the most powerful straight-six gasoline models in the BMW 3 and the BMW 1 Series, this new kit increases engine output by 15 kW/20 hp.

The BMW Performance Power Kit for the diesel models is made up of software and hardware components perfectly tailored to one another in their function. The kit has been developed specifically for the 2.0-litre four-cylinder diesel with an all-aluminium crankcase, common-rail fuel injection and turbocharger, increasing maximum output of this four-cylinder diesel from 130 kW/177 hp to 145 kW/197 hp. Peak torque available all the way from 1,750 to 3,000 rpm, is up from 350 to 390 Newton-metres (258 to 287 lb-ft).

Ideal for convenient transport: the new BMW rear rack systems.
An innovative rear transport system now enables drivers of BMW models not fitted with a towbar to take along bicycles, skis and snowboards safely and conveniently. The rack system is made up of support elements tailored to each model and fitted out of sight at the rear, an electric power connection, a base module serving as the platform for the transport racks, and the racks themselves for two bicycles or, in future, also for wintersport equipment.

The new rear transport system is entering the market together with the introduction of the new BMW Z4. Further variants tailored to the BMW 5 Series Gran Turismo, the BMW 1 Series, the BMW 3 and the BMW 5 Series will follow in due course.

Reaching your destination with superior comfort: the new portable navigation systems.
Portable navigation systems offered by Original BMW Accessories ensure a significant increase in comfort and safety and are now available for the BMW 3 Series and the BMW 1 Series, with retrofit kits for the BMW X3 and the new BMW Z4. The BMW Navigation Portable Plus and the BMW Navigation Portable Pro systems both fit ideally into the cockpit of the car.

Thanks to the covered cables and holders tailored to each model and tested for safety, these navigation kits offer a truly demanding solution reflecting the high standards of the brand in terms of both design and technology. Both systems come as an option with two- or three-dimensional map presentation and voice messages. They are operated through a 4.3-inch high-resolution touchscreen and naturally consider the latest information provided on the TMC Traffic Message Channel in guiding the user to his destination.

Perfect care, lasting protection: Natural Care.
The new Natural Care product line enables the enthusiastic customer to combine outstanding cleaning and care with a particular focus on sustainability and the environment. The Natural Care range offers car shampoo, car polish, car wax, a concentrated windscreen cleaner, ass well as a glass and an interior cleaner.

The Natural Care products are based to the largest possible extent on natural, re-generating raw materials. They are all dermatologically tested and certified as harmless.

Infotainment of the future through BMW ConnectedDrive: the Concept BMW Application Store.
BMW ConnectedDrive comprises all innovative offers and technologies connecting the car's occupants, the car itself, and the outside world. Now the Concept BMW Application Store is a further highlight of BMW ConnectedDrive serving to personalise the car to a new and even higher standard.

Consistently enhancing the network of connections within and beyond the car, BMW is becoming the first car maker in the world to offer, within this concept study, the opportunity to download individual applications and software updates

at any time while driving into the car. This keeps the car fully up-to-date in technical terms throughout its entire running life, at the same time being personalised according to the occupants' individual wishes and preferences.

Twenty-five years of BMW Mobile Service.
Offering the most advanced and comprehensive breakdown assistance network in the world, the BMW Group gives its customers consistent mobility round the clock on 365 days a year. For BMW Mobile Service means qualified assistance from one source in Germany and many other countries – now for no less than twenty-five years.

All of the specialists at the Headquarters in Munich are experienced master mechanics with the one and only objective to give the customer the right diagnosis as quickly as possible. In many cases competent tips provided by such specialists enable the customer to help himself and continue his journey right away. And should such advice not be sufficient, a trained engineer will set out in his BMW Service Mobile to carry out the repairs required directly on the spot.

BMW Mobile Service is now available in nineteen European countries as well as nearly all other countries the world over. Worldwide more than 830 BMW Service Mobiles with their silver/white livery are constantly at the service of BMW Group customers wherever they may be.

2. BMW EfficientDynamics: Lower Emissions, Greater Driving Pleasure – BMW Consistently Expands Its Leading Position.

2.1 BMW ActiveHybrid – a New Path to Thrilling Dynamics: BMW Vision EfficientDynamics.

BMW sees technical innovations reducing both emissions and fuel consumption as an elementary part of the brand's product strategy, just like vehicle concepts enhancing the Sheer Driving Pleasure so typical of BMW as a lasting, sustained experience.

Now the BMW Vision EfficientDynamics concept car clearly demonstrates that these objectives expressed through the BMW EfficientDynamics development strategy are fully compatible with the most demanding reduction in fuel consumption and emissions complying in full with future requirements. Conceived as a 2+2-seater with plug-in full-hybrid technology, this unique car is able to combine the performance of a BMW M Car with a standard of fuel economy and emission management exceeding even the current level achieved by the latest small cars in the market.

This outstanding result is made possible by the consistent integration of BMW ActiveHybrid components, their combination with an extremely economical combustion engine, and the outstanding aerodynamic qualities of the BMW Vision EfficientDynamics concept car.

BMW Vision EfficientDynamics is the result of an all-inclusive development process starting from a clean sheet of paper. This ensures an improvement of both efficiency and driving pleasure far exceeding the sum total of all individual components and technologies, and is also borne out in the very emotional design of this unique concept car. BMW Vision EfficientDynamics is therefore an unprecedented sports car offering fascinating perspectives for the future of Sheer Driving Pleasure combined in full harmony with maximum efficiency.

Presenting this unique concept car, BMW is once again demonstrating the company's outstanding competence in the development of cutting-edge drive systems. Indeed, BMW Vision EfficientDynamics is the most comprehensive implementation of the BMW EfficientDynamics development strategy seen so far. The drive units provide a top speed limited electronically of 250 km/h

or 155 mph, with acceleration to 100 km/h in 4.8 seconds. Average fuel consumption in the EU test cycle is 3.76 litres/100 kilometres, equal to 75.1 mpg imp, and the CO_2 emission rating is 99 grams per kilometre.

CO_2 emission management is even more outstanding when driving in the all-electric mode after charging the battery from a plug-in source: Taking all emissions in the generation of electricity into account, as prescribed by the EU mix, the car's emission rating in this case is just 50 grams per kilometre. Through this unique balance of driving pleasure and fuel economy the BMW Vision EfficientDynamics concept car clearly demonstrates the potential of BMW ActiveHybrid technology making its world debut at the 2009 Frankfurt Motor Show in the BMW ActiveHybrid X6 and BMW ActiveHybrid 7 production models.

This truly impressive power and performance is made possible by combining a particularly fuel-efficient three-cylinder turbodiesel with one electric motor each on the front and rear axle. The intelligent combination of these three power units and the energy they develop, together with precisely controlled energy management, serves to enhance both the dynamic performance and the all-round efficiency of the car, using the full potential of BMW ActiveHybrid to reduce both fuel consumption and CO_2 emissions to the greatest possible extent. Overall system output is 262 kW/356 hp, peak torque is 800 Newton-metres/590 lb-ft.

The special arrangement of the three power units allows all-wheel drive also available in the all-electric mode. The result is minimum power loss and at the same time harmonious transmission of the power available under all conditions.

In its design, BMW Vision EfficientDynamics for the first time conveys the dynamic look so typical of a BMW sports car to a hybrid vehicle. Developed with know-how from Formula 1, the body of this unique sports car is an expression of intelligent lightweight technology and supreme aerodynamic efficiency. And in the design of the interior, the focus was likewise on both the fascinating driving experience and, in particular, on transparent, hands-on technology and maximum reduction of weight.

Turbodiesel power unit with unprecedented output per litre.
The combustion engine is a cutting-edge turbodiesel featured for the first time in the BMW Vision EfficientDynamics concept car. Displacing 1.5 litres on three cylinders, the engine consistently follows the downsizing principle using relatively small engine capacity combined with a turbocharger to reduce fuel consumption.

Through its compact dimensions, the three-cylinder fits conveniently in front of the rear axle like in an agile mid-engined sports car, despite the two seats at the rear. Fuel is injected by the latest generation of common-rail direct injection, the turbocharger features variable intake geometry for maximum efficiency.

Engine output is 120 kW/163 hp, peak torque 290 Newton-metres/214 lb-ft. The output per litre of 80 kW/109 hp achieved in this way sets a new record in diesel technology.

The power delivered by the turbodiesel in conveyed to the rear axle by means of a double-clutch gearbox. This advanced transmission technology already offering a particularly dynamic driving experience in BMW's unusually sporting production cars, allows the driver to shift gears without the slightest interruption of power and traction.

BMW Vision EfficientDynamics comes with a newly developed, minimum consumption version of BMW's direct-clutch gearbox with six speeds for maximum efficiency and flexibility.

Two electric motors for full-hybrid drive.
The combustion engine is supplemented by two electric motors. Consistently applying the BMW ActiveHybrid strategy, BMW's development engineers followed the principle of "Best of Hybrid", choosing the optimum combination of a hybrid synchronous motor on the front axle and a full-hybrid system at the rear. Through the specific configuration of the system as an advanced hybrid ideal for practical use on the road, the driver benefits from the extra efficiency of the electric motors over a far wider speed range than with a conventional hybrid car.

The rear axle comes with a second-generation full-hybrid system corresponding to the technology introduced for the first time in the BMW ActiveHybrid 7 production model. Running as an electric motor, the compact electric power unit positioned between the combustion engine and the double-clutch gearbox develops a consistent 25 kW and is able to reach a peak of up to 38 kW. Maximum torque, again, is 290 Nm or 214 lb-ft, the power developed in this way serving, depending on driving conditions, either to support the combustion engine or for all-electric motoring.

In overrun and when applying the brakes the electric motor acts as a generator feeding electric power to the lithium-polymer battery in the car. The electric energy developed in this way is therefore generated without any additional consumption of fuel, raising the principle of Brake Energy Regeneration already

featured in BMW's current models to an even higher and significantly more efficient level. Energy wasted on the brakes of a conventional car is thus saved within the new power system for subsequent use in driving the car.

A second electric motor acts on the front axle. This power unit, a hybrid synchronous motor, offers permanent output of 60 kW and peak torque of 220 Newton-metres or 162 lb-ft. Extra power of 84 kW is available for a period of up to 30 seconds and for 10 seconds the electric motor is even able to develop 104 kW. Power is transmitted through a two-stage, single-speed reduced-ratio gearbox.

BMW Vision EfficientDynamics is able to run completely under electric power, with the power of the turbodiesel engine alone, or through an infinite combination of the three power sources. Depending on driving conditions and the driver's particular requirements, the two electric motors may be used both for accelerating and for regenerating energy when applying the brakes and in overrun.

This principle ensures a high level of efficient energy management, with the charge status of the lithium-ion battery constantly remaining within the optimum range. When accelerating the electric motors help to boost the car for even greater performance, ensuring a spontaneous and direct response and a significant reduction in fuel consumption. For a short time, for example when overtaking, the cumulative maximum output of all three power units increases to 262 kW/356 hp, with maximum torque generated by the three power units reaching 800 Newton-metres/590 lb-ft.

Lithium-polymer cells serving as the battery for electrical energy.
The energy cells featured in BMW Vision EfficientDynamics are housed in a chassis element running from front to rear through the middle of the car. The front unit is the lithium-polymer complex, an ongoing development of the lithium-ion battery as the currently most efficient technology for storing a high level of electrical energy for maximum performance.

Overall, BMW Vision EfficientDynamics comes with a total of 98 lithium-polymer cells, each offering a capacity of 30 amp/hours and developing continuous output of 600 Amps at a voltage of 3.7 V. For a period of 30 seconds, each cell is even able to develop maximum output of 1,200 Amps.

Serial arrangement of the lithium-polymer cells serves to generate nominal voltage of 364 V, the gross storage capacity of the battery is 10.8 kW/h. Offering an unusually high discharge capacity of 80 per cent, the battery delivers 8.6 kW/h for driving the car.

This superior performance comes on overall weight of the entire energy storage system of just 85 kg or 187 lb. A further advantage is that through their optimum dimensions tailored to the specific qualities and features of the car, the lithium-polymer cells, together with the operating strategy chosen with a concept of energy management looking ahead at upcoming requirements, reduces the thermal load acting on the battery to such an extent that there is no need for active cooling.

Plug-in solution: convenient charging of the electric power system on a conventional power socket.
Brake Energy Regeneration consistently transfers electric power generated while driving without any additional fuel consumption to the battery, which may subsequently be used to supply power to both the electric motors and the on-board network. A further option is to connect the lithium-polymer cells to a conventional power socket for a simple and efficient charge process, using a plug-in connector in the front right wing of the car.

Connected to the regular domestic power mains (220 V, 16 Amps), the system requires a maximum of 2 ½ hours to fully charge the lithium-polymer cells. And wherever a power source with higher voltage and amperage (380 V, 32 Amps) is available, the charge time is an even shorter 44 minutes at the very most.

In addition to the electrical energy storage facilities,
BMW Vision EfficientDynamics comes with a conventional fuel tank at the rear end of the central chassis tunnel, offering a capacity of 25 ltr or 5.5 imp gals. Running on diesel fuel alone, BMW Vision EfficientDynamics is able to cover a distance of approximately 650 km or 400 miles just with its combustion engine. Benefiting from an extra range of up to 50 kilometres or 31 miles in the all-electric mode, the car offers an overall cruising range of approximately 700 kilometres or 435 miles.

As a result, this unique concept car offers all the requirements for using energy with maximum efficiency and at the same time experiencing the dynamic performance so typical of BMW without any restriction of everyday driving qualities.

Performance, fuel economy and emission management opening up new dimensions in hybrid motoring.
The power delivered by the three power units gives the
BMW Vision EfficientDynamics concept car a level of dynamic performance far superior to anything provided so far by any hybrid vehicle. Indeed, the performance and consumption figures determined by standardised computer

simulations show an exceptionally good balance of driving pleasure and fuel economy even for a hybrid. Acceleration from a standstill to 100 km/h, for example, comes in just 4.8 seconds and the car's top speed would be over 250 km/h or 155 mph, requiring electrical limitation of top speed in accordance with BMW's corporate philosophy through electronic engine control now also on a full-hybrid sports car.

The objective to develop a vehicle offering the performance of a BMW M Car combined with supreme all-round efficiency therefore comes to bear completely and without the slightest restriction in BMW Vision EfficientDynamics.

At the same time fuel economy and emission management now reach a standard only achieved so far, if at all, by far less powerful small cars conceived primarily for city traffic and short distances. Applying the criteria of the EU test cycle currently prescribed by law, BMW Vision EfficientDynamics offers average fuel consumption of just 3.76 litres of diesel fuel per 100 kilometres, equal to 75.1 mpg imp. CO_2 emissions, in turn, are 99 grams per kilometre.

As a plug-in hybrid, BMW Vision EfficientDynamics is able to cover the entire drive cycle for measuring fuel consumption also with its combustion engine completely switched off. Then, to subsequently charge the lithium-polymer cells to the same status as when setting off, all the driver has to do is connect the car to an external power grid. To determine the consumption of electric power, the only requirement is to compare the charge level of the battery before and after the test cycle.

To determine the total volume of CO_2 emissions when driving in the all-electric mode, new legal standards for measuring the level of fuel consumption are currently being prepared for hybrid and electric cars with a plug-in power supply. Applying this calculation method, the CO_2 emission ratings generated by BMW Vision EfficientDynamics are reduced further to just one-third of the original figure of 99 grams per kilometre. Clearly, this significant reduction of emissions opens up a new dimension in BMW's EfficientDynamics development strategy in this unique concept car.

Aerodynamic qualities reflecting BMW's know-how gained in Formula 1.

BMW Vision EfficientDynamics also takes a new approach in its design and streamlining, the body and the interior clearly expressing the unique combination of supreme efficiency and the sporting performance so typical of the brand. Following the design language so characteristic of BMW, this unprecedented concept car clearly visualises both highly efficient aerodynamics and consistent lightweight construction.

In its design, BMW Vision EfficientDynamics differs significantly from the usual low-emission cars seen so far. And since the principle of “form follows function” is not reduced in this case just to the overall look of the car, but rather embraces each and every detail, BMW Vision EfficientDynamics combines unique aesthetic appeal with a highly emotional impact. Through its design alone, therefore, BMW Vision EfficientDynamics clearly proves that Sheer Driving Pleasure in typical BMW style may also be offered without restrictions in a brand-new, innovative car concept.

Measuring only 1.24 metres or 48.8" in height and boasting a sweeping, arch-like roofline, BMW Vision EfficientDynamics offers the slender silhouette of a classic Gran Turismo. With the combustion engine fitted in front of the rear axle, the designers have furthermore succeeded in giving the car a very low and sleek front end, with the flow of air depending on driving conditions being further smoothened by active louvers in the radiator closing completely whenever the need for cooling air is relatively low.

This efficient function follows in the footsteps of the active air flap control already used as a feature of BMW EfficientDynamics in many of BMW’s current production models. And as a further highlight, BMW Vision EfficientDynamics guides air smoothly and exactly as required into the car through an active air intake at the front.

Numerous details in the design of the body are based on the know-how BMW has gained in Formula 1, a number of body elements serving as air deflectors and guide vanes, like on the BMW Sauber F1. Designed as ducts, for example, the A-pillars serve to channel the flow of air in the same way as the rear lights with their wing profile.

The underfloor of the car is fully covered from front to rear and from one side to the other, thus maintaining a smooth surface to avoid any air swirl liable to increase fuel consumption. Slender openings around the front air dam guide the air flowing in specifically into two closed ducts leading inside the front air dam to the wheel arches where the air comes out again through a very slim aperture at high speed, flowing just next to the outer wheel flanks. This air jet rests on the front wheels like a curtain and is therefore referred to most appropriately as the air curtain with its highly stabilising effect.

Overall vehicle concept for a drag coefficient of just 0.22.
To further optimise the aerodynamic qualities of the entire vehicle and keep rolling resistance to a minimum, BMW Vision EfficientDynamics comes with tyres and rims of quite unusual size on a sports car. The tyres measure 195/55 in

their width-to-height ratio, while large 21-inch rims provide a contact surface on the road otherwise offered only by a much wider tyre. In combination with the sophisticated axle kinematics, this ensures particularly agile driving behaviour.

The extra-large rim covers extending over part of the tyre flanks add to the unique, very different look of BMW Vision EfficientDynamics from the side. The blade profile integrated in the rims serves furthermore to reduce the negative effect of the turning wheels on the overall aerodynamics of the car. In all, these features optimising the aerodynamic qualities of the car give the BMW Vision EfficientDynamics concept car a very low drag factor (C_X)of just 0.22.

Technological look as a strong impression of intelligent lightweight construction.

In both its exterior and interior design, BMW Vision EfficientDynamics stands out clearly as a strong spearhead in technology. Many components of the vehicle are presented in full view expressing the “transparent” character of the car as a powerful visual feature of lightweight technology. The chassis and suspension of BMW Vision EfficientDynamics are made completely of aluminium, the roof and the outer skin on the large doors are made almost completely of a special polycarbonate glass automatically darkening as a function of the light shining on the car.

Measuring 4.60 metres (181.1") in length, 1.90 metres (74.8") in width and 1.24 metres (48.8") in height, this unique concept car offers ample space for up to four passengers and their luggage. Thanks to the consistent lightweight construction strategy applied on the car, unladen weight according to the DIN standard is limited to 1,395 kg or 3,076 lb, with the centre of gravity relevant to motoring comfort and driving dynamics remaining very low.

Considering the wide range of high-performance hybrid drive components and the high-capacity lithium-polymer battery fitted in the car, these figures clearly confirm the overall concept of BMW Vision EfficientDynamics with its great commitment to outstanding efficiency. In its power-to-weight ratio, the BMW Vision EfficientDynamics concept car is far superior to all conventional hybrid cars, achieving the same standard as extremely dynamic sports cars with a conventional combustion engine.

Carrying a maximum load of 445 kg or 981 lb, this unique 2+2-seater is fully suited for everyday traffic. Luggage capacity of 150 litres or 5.3 cu ft, in turn, allows the driver and passengers to conveniently take along, say, two golf bags. And to meet additional loading requirements the backrests of the two rear seats may be tilted down individually to provide extra storage space.

Emotional design through sculptural shapes and layering technology.
Reflecting the innovative drive concept of this unique car, the design of BMW Vision EfficientDynamics likewise takes a new approach in combining functional progress with a most powerful emotional impact.

This has been achieved through the close cooperation of BMW's Design and Technical Development Divisions starting at an early point and continuing consistently throughout the entire development process. The result is a brand-new vehicle architecture with the drive components as well as the body and interior elements perfectly coordinated and matched to one another with maximum flexibility and individual style. A fully integrated design philosophy also provided new options in using harmonised design principles connecting the exterior and the interior and providing an interacting effect between the two areas.

Sculptural design language giving BMW Vision EfficientDynamics a fully harmonised, complete look ensures the proportions so typical of a BMW sports car. The front, side, rear and roof areas, for example, flow smoothly into one another. Dynamically contoured surfaces and shapes, in turn, create highly attractive light and shade effects accentuating the light and sporting character of the car in a most emotional manner.

Layering technology developed by the BMW Group Design Division acts as the fundamental guideline in designing the exterior and interior. Applied for the first time in exterior design, this technology layers one surface on top of the other, creating very smooth seams and joints to reduce the number of components and, accordingly, the weight of the car. As a result, BMW Vision EfficientDynamics meets the most demanding aerodynamic requirements without using any additional body elements, simply through the structure of the surfaces optimised for a smooth flow of air.

Interior: innovative lightweight construction and unprecedented orientation to the driver.
In the design of the interior, innovative layering technology provides an unprecedented symbiosis of function and stylish shapes intentionally reduced to a minimum, consistently implementing and visualising the lightweight principle also inside the car.

Specific components such as the central air vent not only serving to enhance motoring comfort but also acting as part of the cockpit, perform several functions in one. This multi-functionality is then presented visibly within the car, the use of particularly sophisticated materials providing a highly attractive combination of innovation in technology and quality clear to the eye and the touch of the surface.

This interaction of lightweight construction and individual well-being also comes out clearly in the design of the controls and switches, with a leather band, for example, running round the aluminium gear selector lever on the centre console.

Materials combining lightweight technology and all the qualities required are also to be admired all round the cockpit of BMW Vision EfficientDynamics, giving the car an unusually generous feeling of space for a 2+2-seater. The body-contoured seats, for example, are made up of a kevlar shell, a backbone structure, and seat padding with personalised fillings. Clearly, this combination alone ensures supreme comfort on minimum weight.

The driver's and front passenger's seats are connected firmly to the centre console to form a joint interior "landscape", while the rear seats anchored on the floor would appear to be hovering in space. Natural materials and light colours on the seat upholstery and all interior linings underline the light, sophisticated and sustainability-oriented atmosphere within the passenger compartment.

The instrument panel is deliberately padded only where technical components have to be appropriately covered, thus making an important contribution to passenger safety in the event of a collision. The instrument cluster played a fundamental role right from the start in the design process, serving as the starting point for all surfaces within the interior and thus creating a particularly powerful rendition of that driver orientation so typical of BMW.

Innovative light technology: providing clear signals to the outside and offering soothing ambient illumination inside in a unique symbiosis.
LED lights at both the front and rear end of BMW Vision EfficientDynamics provide an innovative combination of the symbols so typical of the brand and clear design language oriented towards trendsetting technology. The distinctive look of the dual round headlights characteristic of a BMW is emphasised in particular by the use of LED technology. The rear lights are integrated also in their function into the design of the entire rear section, forming part of the rear air deflector and thus merging completely into the rear contour.

Extremely flat and compact, the rear lights are made up of innovative LED units forming a smooth and consistent red surface when not in use. Only when used do the respective light chambers take on their appropriate colour such as yellow on the direction indicators.

This innovative light technology also provides an intense symbiosis of the exterior and interior, again promoting and further refining the driving experience. This is also why the ambient illumination of the interior comes with new features

and qualities, the light sources within the passenger compartment being fed from the positioning lights at the side, the rear lights and the brake lights, thus changing the atmosphere created by the lights within the car as a function of driving conditions.

The optical impression conveyed by BMW Vision EfficientDynamics also results in other areas from the symbiosis of the exterior and interior, eliminating the conventional barriers between the two. The lines within the interior, for example, continue on to the innovative design of the engine compartment lid, while in its shape the third brake light positioned higher up on the car follows the structure of the glass roof and tapers to the outside where the roofline moves down gently to the rear.

Gullwing doors for convenient access to all seats.
The doors on BMW Vision EfficientDynamics open up like gullwings, turning on pivots in the front roof column at the level of the side direction indicators. Since the car has no B-pillars, the large door cutouts ensure convenient entry also to the rear seats. The pivots on the doors also provide the base for the exterior mirrors, thus forming an ideal combination of function and aesthetic design.

The structure of the doors is also characterised by several layers of materials on top of one another and the optical and functional symbiosis of the interior and exterior this technology is able to offer. Made up of three layers, the overall structure comprises the outer glass surface, an interim load-bearing layer, and the interior cover with its particularly smooth shapes and flowing forms clearly visible to the passengers, layering technology again, therefore, opening up new perspectives.

The large glass surfaces extending far down on the body also provide a strong optical impression of the low seating position close to the road. And at the same time a stable sidebar ensures the body stiffness and crash safety naturally required on every vehicle. Flowing to the inside at its central point, this safety element also serves as an armrest.

This interplay of the three layers also helping to minimise the weight of the car continues on the trim bar running along the door and extending out of the armrest, finally flowing into the outer door opener on its path from inside to outside.

Clear focus on the essential: three-dimensional Head-Up Display.
Layering technology is also used on the displays in the instrument cluster and in the Head-Up Display developed to an even higher standard on BMW's new concept car. The Display now creates a powerful impression of three dimensions, at the same time providing the option to present various signals more in the front or more in the background, depending on their relevance and current driving conditions.

The Head-Up Display projects information important to the driver on to the windscreen. Indeed, innovative presentation technology even allows the superimposed presentation of several views in three dimensions, keeping, say, the speedometer graphics visible in the background while the latest information on route guidance or warning signals from BMW Night Vision, for example, are shown in the foreground.

The sequence in which such signals appear depends on the driving mode chosen by the driver, the display technology, again depending on the driver's personal preference, enhancing either a particularly sporting, a more comfort-oriented, or an efficiency-based style of motoring.

Through its design alone, the BMW Vision EfficientDynamics concept car clearly shows that highly efficient individual mobility may by all means be presented in emotional style. BMW already offers models in all vehicle segments which, compared with the competition, ensure the lowest level of fuel consumption and emissions combined with superior power and performance. And now BMW Vision EfficientDynamics confirms BMW's commitment to offer a perfect combination in future of unique driving pleasure and optimum qualities in the responsible use of natural resources.

In the design process the need for sustainable management is borne out most clearly by the GINA (Geometry and Functions in N-fold Augmentation) concept developed by the BMW Group. In this case maximum creative freedom sets the foundation for innovative solutions challenging the conventional and meeting the requirements of the future.

This makes the GINA principle particularly well-suited for developing visions for the future reflecting both the wish for emotional style and individual character as well as the quest for sustainable management and efficiency. From the dimensions of its wheels through the design of the rear lights and all the way to the configuration of the cockpit, BMW Vision EfficientDynamics therefore boasts a number of details both outside and inside which, going far beyond conventional solutions, open up a new approach to maximum efficiency and that Sheer Driving Pleasure so typical of BMW.

Concept car serving as a spearhead in technology for BMW EfficientDynamics.

The most obvious areas where BMW Vision EfficientDynamics points into the near future of the BMW EfficientDynamcis development strategy are the drivetrain and the aerodynamics of the car. But even the individual details show highly innovative solutions, the concept car, for example, boasting not only technologies already proven for years in production models, such as Brake Energy Regeneration, Auto Start Stop and Active Air Flap Control, but also a wider range of innovative system components serving to further reduce both fuel consumption and emissions. Again, therefore, these new components are already in the final phase of development or are being tested in prototypes.

One objective of BMW's engineers was, wherever possible, to further reduce the loss of energy still quite substantial even on the most efficient combustion engines. Precisely this is why a water-cooled Thermo-Electrical Generator (TEG) is integrated in the exhaust system of BMW Vision EfficientDynamics, serving to convert a lot of the thermal energy contained in the exhaust emissions into electric power.

This technology originally developed for spacecraft uses the so-called Seebeck effect generating a certain voltage through a temperature gradient within metal-based semi-conductors.

On BMW Vision EfficientDynamics the Thermo-Electrical Generator, which has already proven its practical qualities in a BMW 5 Series test car, develops maximum output of up to 200 W. The pipes and manifolds in the exhaust system are designed in this case to maintain the full power and all the characteristics typical of the combustion engine also when using this generator system.

Forward-looking energy management adjusting to individual requirements.

With the individual system components on board BMW Vision EfficientDynamics being networked with one another, conditions are perfect for implementing a forward-looking system of energy management using information gathered by the sensors of the driver assistance units fitted in the car. Data provided, for example, by the rain sensor or Active Cruise Control with its Stop & Go function as well as by the navigation system, and subsequently evaluated by the central control unit, offers an overview of current and upcoming driving conditions. Then, evaluating such data, the on-board computer is able to forecast driving conditions on the stretch of road immediately ahead, such calculations serving to prepare the car for upcoming requirements and make efficient use of the energy available through optimum operation of all systems.

Forward-looking thermal management operates the drive systems at the highest possible temperatures in order to reduce friction. But should the high-performance host computer determine, for example, that the car is about to enter the motorway, the drive temperature is reduced in advance in the interest of optimum performance.

Another example of such pre-conditioning is the regeneration of energy from the air conditioning, from EPS Electronic Power Steering and the Stopping Power Assistant in order to slow down the car with minimum fuel consumption when approaching, say, a speed limit, a bend, or traffic lights.

Yet another feature of forward-looking energy management is provided by BMW ConnectedDrive through an additional innovation: Now this complex operating strategy considers not only data collected within the car, but also data coming from other vehicles (Car 2 Car) or from sensors fitted on buildings or bridges (Car 2 Infrastructure), thus enabling the driver, say, to avoid traffic congestion in good time or find parking space far more quickly.

The services already offered by BMW ConnectedDrive to avoid traffic congestion and speed up the process of finding parking space are therefore being enhanced by further components and features serving above all to provide even greater efficiency.

Further features of intelligent energy management on BMW Vision EfficientDynamics allow the driver to influence the efficiency of the car himself. By adding an Eco Mode to the existing system of Dynamic Drive Control, for example, this new concept car enables the driver to reduce fuel consumption and emissions very effectively through his individual style of motoring.

This is done by a display in the instrument cluster instructing the driver to accelerate, apply the brakes and – in the manual mode – shift gears with maximum efficiency. In the automatic mode, in turn, the electronic control unit adjusts the gearshift map on the double-clutch gearbox and the control map of the electronic gas pedal to current driving conditions also in the interest of enhanced fuel economy.

BMW Vision EfficientDynamics: the future of BMW EfficientDynamics.
The BMW Vision EfficientDynamics concept car demonstrates the potential of the BMW EfficientDynamics development strategy to an extent never seen before. In this way BMW once again shows the company's unusual skill and competence in developing particularly efficient high-performance drivetrain technologies.

Applying this philosophy, BMW is able to develop vehicles meeting the need for saving natural resources and at the same time offering a new rendition of Sheer Driving Pleasure. A sports car with the dynamic performance of a BMW M Car and the fuel economy of a modern small car indeed opens up highly attractive perspectives for individual mobility in the world of tomorrow.

The new concept car offers a particularly fascinating experience through its individual character. BMW Vision EfficientDynamics is neither a mere variant of a production car built for maximum efficiency nor a purely visionary study completely separated from series development. Rather, all the technologies contributing to the car's outstanding efficiency come from a development process conceived for regular production. Indeed, some of these technologies are already in use in current BMW models, others are approaching production standard or have already proven their functional benefits in practical tests and in prototypes.

The future qualities and the typical character of BMW ActiveHybrid technology come out particularly clearly and strikingly in BMW Vision EfficientDynamics. In conjunction with the most sophisticated energy management, the intelligent combination of the electric motor and the combustion engine ensures outstandingly good fuel economy and emission management combined with a significant improvement of driving dynamics.

BMW Vision EfficientDynamics is therefore a particularly innovative rendition of hybrid technology BMW-style and at the same time offers a fascinating outlook into the future of BMW EfficientDynamics as an overall philosophy and a significant contribution to future-proof mobility.

2.2 Again a Step Ahead: The BMW 320d EfficientDynamics Edition.

An unprecedented combination of low emissions and sheer driving pleasure: 4.1 litres/100 kilometres (equal to 68.9 mpg imp) and 109 grams CO_2/km for 120 kW/163 hp. Most fuel-efficient and lowest-emission model in BMW's current product portfolio sets new standards in the midrange segment.

Premium car maker BMW is further increasing its substantial lead in the development of particularly clean and at the same time very dynamic cars of the highest standard. Teaming up with the BMW 320d, the new BMW 320d EfficientDynamics Edition is being presented for the first time at the 2009 Frankfurt Motor Show. This unique saloon combines fuel consumption of just 4.1 litres diesel/100 kilometres (equal to 68.9 mpg imp) and a CO_2 rating of 109 grams per kilometre in the EU test cycle with engine output of 120 kW/163 hp.

The 2.0-litre four-cylinder diesel engine of this high-tech model boasts an all-aluminium crankcase, turbocharging with variable intake geometry and common-rail direct fuel injection complete with piezo-injectors. With the engine and the entire car modified once again for an even higher standard of efficiency, this unique saloon targeted above all at the German, Italian, French and Spanish markets comes with optimised aerodynamics, an extra-long final drive ratio, and an innovative two-mass flywheel incorporating a centrifugal-force pendulum .

All this makes the BMW 320d EfficientDynamics Edition the most fuel-efficient and lowest-emission car in BMW's current model range. In the fiercely contested midrange segment it is an unparalleled, highly attractive premium offer for the truly demanding and progressive customer focusing primarily on superior economy and the environment, without wishing to forego the sporting driving characteristics so typical of a genuine BMW.

The enhanced efficiency already offered by the existing models in the BMW 3 Series thanks to BMW EfficientDynamics making these cars superior to their competitors, is now raised to an even higher level in the BMW 320d EfficientDynamics Edition.

Four-cylinder diesel engine with optimised efficiency and superior performance all in one.
The BMW 320d EfficientDynamics Edition is powered by a four-cylinder diesel engine specifically optimised for even greater fuel economy and emission management and, therefore, for a standard of efficiency never seen before. All this comes from the 2.0-litre four-cylinder power unit with its all-aluminium crankcase, turbocharging and the latest generation of common-rail fuel injection featured with various power stages also in the BMW 316d, the BMW 318d and the BMW 320d. The engine specially conceived for the BMW 320d EfficientDynamics Edition develops maximum output of 120 kW/163 hp at an engine speed of 3,500 – 4,200 rpm and peak torque of 360 Newton-metres/265 lb-ft all the way from 1,750 to 3,000 rpm.

The engine stands out in particular through its sporting and dynamic power from low revs. The innovative centrifugal-force pendulum incorporated in the two-mass flywheel, together with the longer transmission ratio, serves to significantly reduce the level of engine speed at all road speeds relevant in practice in the BMW 320d EfficientDynamics Edition. The shift in load points beneficial to fuel economy and emissions goes together in this case with full maintenance of the spontaneity and running smoothness so typical of a BMW diesel.

Centrifugal pendulum in the two-mass flywheel for smooth and comfortable motoring without vibrations even at very low engine speeds.
To ensure smooth driving characteristics free of vibration also when driving at particularly low engine speeds, the power unit of the BMW 320d EfficientDynamics Edition features a so-called centrifugal pendulum efficiently compensating any unsmoothness in running characteristics typically encountered at low revs. This innovative component is integrated in the engine's two-mass flywheel where it dampens the vibrations generated under load, thus ensuring comfortable and acoustically optimised development of power and performance all the way from low engine speeds.

This increase in motoring comfort will encourage the driver to use a higher gear more often or, respectively, not to shift back as he otherwise would do. But when accelerating the BMW 320d EfficientDynamics Edition still offers the driving behaviour and agility so typical of BMW.

The driving dynamics characteristic of a BMW are borne out also by the car's acceleration to 100 km/h in just 8.2 seconds and by the BMW 320d EfficientDynamics Edition accelerating in fifth gear from 80–120 km/h in 9.6 seconds. Top speed is 225 km/h or 140 mph.

Lower emissions, more driving pleasure: consistently implementing the potential of BMW EfficientDynamics.

The BMW 320d EfficientDynamics Edition comes with the complete range of technologies serving to reduce both fuel consumption and emissions and already featured as standard on the other models in the BMW 3 Series. Brake Energy Regeneration, for example, serves to concentrate the generation of electric power for the on-board network on overrun and the application of the brakes, thus avoiding even the slightest increase in fuel consumption. The Auto Start Stop function, in turn, switches off the engine even during a short stop in traffic, avoiding any unnecessary consumption of fuel while idling. The gearshift point indicator on the BMW 320d EfficientDynamics Edition, to mention yet a further example, tells the driver in good time when to shift gears in the interest of optimum efficiency. And like the detachable climate compressor, EPS Electronic Power Steering operates only when needed, again in the interest of maximum efficiency.

The electric motor featured within the EPS system therefore takes up energy only when really needed for power assistance or when required by the driver. Active cooling through air flap control and tyres with reduced roll resistance also serve to enhance the car's efficiency, and the BMW 320d EfficientDynamics Edition is likewise fitted with a diesel particulates filter close to the engine. It almost goes without saying, finally, that the BMW 320d EfficientDynamics Edition fulfils the EU5 emission standard in full.

The fuel economy and emission management also featured in the other models in the BMW 3 Series are combined in the BMW 320d EfficientDynamics Edition with additional innovations, which, together with the decrease in engine power on the BMW 320d by 10 kW or 14 hp, serve to reduce fuel consumption and emissions to an even lower level, below the CO_2 standard of 110 grams per kilometre.

These additional features include a longer final drive ratio and the lower chassis and suspension of the car. Newly developed Aero wheel rims in turbine wheel design – the only optical sign of distinction on the car to be seen from outside – improve the level of aerodynamics to an even higher standard, giving the BMW 320d EfficientDynamics Edition a drag coefficient of just 0.26.

Within the BMW 3 Series the BMW 320d EfficientDynamics Edition is the so far most consistent implementation of the BMW EfficientDynamics development strategy, offering the motorist who really appreciates the premium character and sporting driving qualities of a BMW 3 Series and at the same time attaches utmost significance to superior economy exactly the right choice in the mid-range market segment.

Comparing the efficiency of all models in this segment, BMW, introducing the BMW 320d EfficientDynamics Edition, is once again moving a step ahead of the competition. And following BMW's general policy, the improvement of efficiency offered by this innovative technology does not even require the payment of a higher price for the BMW 320d EfficientDynamics Edition, which therefore comes at the same price as the "regular" BMW 320d, which naturally is still included in BMW's model range.

2.3 Superior Efficiency in All Vehicle Segments: BMW's Current Model Range for Even Greater Efficiency and Reduced Emissions.

Entering autumn 2009, BMW is continuing to expand its model range through the addition of particularly fuel-efficient low-emission cars. Offering new entry-level variants in a number of model series, BMW indeed enables the customer to enjoy the Sheer Driving Pleasure and premium quality so typical of a BMW in combination with all-round economy enhanced to an even higher level than before.

At the same time BMW is improving its leading position in the advance fulfilment of the EU6 emission standard not coming into force until the year 2014: Apart from the BMW 330d Saloon, the BMW 730d and the BMW 730Ld are now also available with optional BMW BluePerformance technology.

The number of BMW models complying with the EU5 emission standard, in turn, is increasing to no less than 90 in autumn 2009, and will soon there after be joined by the two first BMWs with hybrid drive, both the BMW ActiveHybrid 7 and the BMW ActiveHybrid X6, which are making their world debut at the 2009 Frankfurt Motor Show, naturally also fulfilling the EU5 standard.

The introduction of the BMW 316d in autumn 2009 marks the launch of a new entry-level diesel in the BMW 3 Series. The BMW 116i and the BMW 116d, in turn, are the latest additions to the three-door and five-door versions of the BMW 1 Series. The BMW X3 xDrive18d, in turn, has in the meantime entered the market as the most economical of the four diesel variants of this Sports Activity Vehicle now available to the customer. And in the BMW 5 Series the BMW 520d Special Edition available in both Saloon and Touring guise offers a particularly economical "basic" variant.

All new entry-level models come as standard with BMW EfficientDynamics technologies tailored to the respective model series and guaranteeing a consistently low level of maintenance costs also as a result of low fuel consumption and exemplary emission standards. As just one example, the new BMW 316d as well as five models in the BMW 1 Series already outperform the CO_2 limit of 120 grams per kilometre relevant to car taxation in many countries.

Lowest level of fuel consumption and CO_2 emissions: German Motor Vehicle Authority confirms BMW's leading position in the premium segment.

Introducing these new models, BMW is once again confirming the company's leading role in consistently reducing average fleet consumption and CO_2 emissions. Thanks to the broad-scale use of BMW EfficientDynamics throughout all model series, BMW clearly lies far ahead of all other premium manufacturers in terms of fuel economy and emission management, as is confirmed once again by the latest statistics published by the German Motor Vehicle Authority. According to the Authorities' latest statistics covering all new cars registered in Germany in 2008, the BMW brand, averaging a CO_2 emission rating of 160 grams, significantly outperforms its most important competitors in the premium segment.

This figure of 160 grams of CO_2 per kilometre is also significantly below the average of all new cars registered in Germany in 2008 of 165 grams – an average figure also comprising the smallest and most compact vehicles. The car fleet offered by the next best competitor in the premium segment emits 16 grams more CO_2 than the average BMW. The other competitors, in turn, are an even more significant 28 grams and more above BMW in terms of their emissions. And when comparing average fuel consumption, BMW's lead over the competition in the premium segment is approximately 0.5 litres/100 kilometres.

BMW 316d: a highly attractive and economical option in the midrange segment.

Consistently maintaining its success and selling in particularly large numbers, the BMW 3 Series will be upgraded even further in autumn 2009 by a particularly economical model: The BMW 316d offers the Sheer Driving Pleasure so typical of the brand in a particularly economical rendition entering the fiercely contested midrange segment. This new saloon is powered by a 2.0-litre four-cylinder diesel featuring a turbocharger and common-rail fuel injection, with maximum output of 85 kW/115 hp at an engine speed of 4,000 rpm and peak torque of 260 Newton-metres/…lb-ft at 1,750 rpm.

A wide range of BMW EfficientDynamics technologies featured as standard, including Brake Energy Regeneration and Auto Start Stop also on the BMW 316d, ensures further benefits in motoring economy and dynamic performance over and above the high level of efficiency already offered by the engine.

The BMW 316d confirms its superior agility by accelerating from a standstill to 100 km/h in 10.9 seconds and reaching a top speed of 202 km/h or 125 mph. Average fuel consumption in the EU test cycle of 4.5 litres/100 kilometres (equal to 62.8 mpg imp) and a CO_2 emission rating of 118 grams per kilometre, in turn, set new standards in terms of efficiency. Clearly, the BMW 316d fulfils the EU5 emission standard in every respect.

As the sixth diesel in the BMW 3 Series, the BMW 316d naturally offers all the qualities so characteristic of this model series. These include the particularly good balance of fuel economy and performance as well as the athletic design, superior suspension technology, premium quality and sophisticated model features offered by the BMW 3 Series and to customise the car, the BMW 316d is naturally available with all the options and accessories offered for the BMW 3 Series in the market.

BMW X3 xDrive18d: superior agility, outstanding efficiency.
Introducing the new entry-level variant of the BMW X3, the world's most successful manufacturer of all-wheel-drive premium cars is once again setting new benchmarks for efficiency in a Sports Activity Vehicle. The BMW X3 xDrive18d is powered by a 2.0-litre four-cylinder diesel developing maximum output of 105 kW/143 hp. Average fuel consumption of this entry-level model in the BMW X3 family in the EU test cycle of only 6.2 litres/100 kilometres (equal to 45.6 mpg imp) results in a CO_2 emission rating of 165 grams per kilometre.

These qualities make the BMW X3 once again the most fuel-efficient all-wheel-drive model in its market and performance segment, and it almost goes without saying that the BMW X3 xDrive18d fulfils the EU5 exhaust standard right from the start in its regular trim.

Like all engine variants, the BMW X3 xDrive18d also comes as standard with BMW's intelligent xDrive all-wheel drive technology. This permanent, electronically controlled all-wheel drive provides variable distribution of drive power between the front and rear axle, promoting both driving dynamics on the road and safe traction off the beaten track by always providing the right drive power where it can be converted into actual motion most effectively.

The combination of powerful engines, xDrive and superior suspension technology has already made the BMW X3 the epitome of driving dynamics on the road as well as agility and superior traction on rough terrain.

The new entry-level model leading into the BMW X3 Series naturally comes with all the Sheer Driving Pleasure so characteristic of all models in the BMW X family. In the BMW X3 xDrive18d the fortes of xDrive, the spontaneous and direct delivery of power so typical of BMW diesel engines, and the uncompromising quality of a premium model all come together with a further enhancement of economy and motoring efficiency.

The BMW X3 xDrive18d is powered by a four-cylinder diesel featuring an all-aluminium crankcase and common-rail direct fuel injection developing maximum output of 105 kW/143 hp at 4,000 rpm. Peak torque of 350 Newton-metres/258 lb-ft delivered at a low 1,750 rpm gives the car truly impressive muscle and traction under all conditions, the new BMW xDrive 18d accelerating from a standstill to 100 km/h in 10.3 seconds and reaching a top speed of 195 km/h or 121 mph.

BMW 520d Special Edition: the economic entry into Business Class motoring.

Driving pleasure, superior comfort, powerful design and innovative technology give the BMW 5 Series its outstanding position in the upper midrange segment – and now the BMW 520d Special Edition makes the move into this superior market even more attractive.

Available in both Saloon and Touring guise, the BMW 520d Special Edition combines the lowest fuel consumption and emission ratings in its segment as well as full compliance with the EU5 emission standard with a wide range of regular features. Hence, the new model provides a particularly economical opportunity to enjoy the progressive premium character and the dynamic driving experience of a BMW 5 Series with all its benefits.

The BMW 520d Special Edition is powered by a 2.0-litre four-cylinder diesel delivering maximum output of 120 kW/163 hp and peak torque of 350 Newton-metres/258 lb-ft all the way from 1,750 to 2,500 rpm. Acceleration to 100 km/h comes in 8.5 seconds in the Saloon and 8.7 seconds in the Touring, top speed is 227 km/h (141 mph) in the Saloon and 220 km/h (136 mph) in the Touring model.

The BMW 520d Special Edition proves its supreme efficiency through average fuel consumption in the EU test cycle of 5.1 litres/100 kilometres, equal to 55.4 mpg imp, (Touring: 5.3 litres/53.3 mpg imp) and a CO_2 emission rating of 136 grams per kilometre (Touring: 140 grams).

This new special model supplements the wide range of standard features already provided by the BMW 520d through further highlights enhancing the level of motoring comfort and Sheer Driving Pleasure to an even higher point: The BMW 520d Special Edition comes with seat heating for the driver and front passenger, Park Distance Control and door entry trim bars proudly bearing the name “Edition”. Further standard features are automatic air conditioning with an extended range of functions such as Automatic Air Recirculation, auxiliary ventilation, a solar and mist sensor, separate, automatic temperature control and air distribution for the driver and front passenger, as well as temperature and ventilation control also on the rear seats. The Saloon, finally, comes with through-loading including a ski-bag, the Touring boasts railing bars on the roof.

The BMW 520d Special Edition is available either with BMW’s six-speed manual gearbox featured as standard or optional six-speed automatic transmission. The Business and Professional navigation systems come at particularly attractive terms, the latter even including a mobile phone preparation kit and a Bluetooth interface.

BMW 730d and BMW 730Ld: even more efficient and – with BMW BluePerfomance technology – already featuring the EU6 emission standard.

The BMW 730d and the BMW 730Ld luxury saloons are the first cars in their segment optionally available with BMW BluePerformance technology, thus already fulfilling the EU6 emission standard today.

Introducing these revolutionary models with their highly advanced technology, BMW is further strengthening its leading role in the introduction of emission management technology for a further substantial reduction of nitric oxide emissions (NOX). On the BMW 730d and the BMW 730Ld with BMW BluePerformance, the diesel particulates filter and the oxidation catalyst also featured as standard are supplemented by a NOX storage catalyst operating maintenance-free throughout the entire service life of the car and not requiring any additional operating media. As a result, emission management in this new, 180 kW/245 hp six-cylinder diesel already reduces nitric oxides to the level not coming into force until the EU6 standard is introduced in 2014.

The news of BMW BluePerformance Technology does not have any influence on the fuel consumption and CO_2 ratings of the BMW 730d and the BMW 730Ld, which are indeed being reduced even further in the 2010 model year. Modifications on both the engine and the drivetrain reduce the average fuel consumption of the BMW 730d measured in the EU test cycle to 6.8 litres/100 kilometres, equal to 41.5 mpg imp (BMW 730Ld:

6.9 litres/40.9 mpg imp) and cutting the CO_2 rating to 178 grams per kilometre (BMW 730Ld: 180 grams). As a result, the BMW 730d and the BMW 730Ld are both enhancing their leading position as the most efficient saloons in the luxury segment.

The driving dynamics of these luxury saloons remain unaffected by this reduction of fuel consumption and CO_2 emissions, with the BMW 730d accelerating from a standstill to 100 km/h in 7.2, the BMW 730Ld in 7.3 seconds. Top speed of both models, finally, is 245 km/h or 152 mph.

BMW 116i and BMW 116d: perfect starting point for the gasoline and diesel models in the BMW 1 Series.
Further expansion of the engine range in the BMW 1 Series makes Sheer Driving Pleasure in the compact class even more attractive. Indeed, BMW has successfully introduced new entry-level variants this year in both the gasoline and diesel segments the BMW116i and the BMW 116d offering particular economical options to enjoy the fascinating agility of this rear-wheel-drive model still unique with this technology in its segment. Both engines are available on the five-door and the three-door versions of the BMW 1 Series.

Particularly the BMW 116d sets new standards for efficiency in its segment. The power unit featured in this car is a further variant of the 2.0-litre four-cylinder already to be admired in the BMW 118d lauded, inter alia, as the World Green Car of the Year 2008. And now the BMW 116d outperforms the fuel economy and emission rating of the BMW 118d once again, offering average fuel consumption in the EU test cycle of 4.4 litres/100 kilometres (equal to 64.2 mpg imp) and a CO_2 rating of 118 grams per kilometre.

Like all models in the BMW 1 Series, this new entry-level diesel also comes with the latest BMW EfficientDynamics technologies such as Brake Energy Regeneration, Auto Start Stop and a gearshift point indicator.

The special version of BMW's all-aluminium turbodiesel with common-rail fuel injection developed for the new models delivers maximum output of 85 kW/115 hp at an engine speed of 4,000 rpm and reaches peak torque of 260 Newton-metres/192 lb-ft all the way from 1,750 to 2,500 rpm. With its power and muscle cutting in at such an early point, this advanced power unit offers not only exemplary all-round economy, but also the agility so typical of the BMW 1 Series. The new BMW 116d accelerates to 100 km/h in 10.3 (five-door) and, respectively 10.2 (three-door) and reaches a top speed in both cases of 200 km/h or 124 mph.

The entry-level petrol model, the BMW 116i likewise available with both five and three doors, also offers an even better balance of sporting performance and superior fuel economy. The four-cylinder power unit with BMW's High Precision Injection develops maximum output of 90 kW/122 hp and now delivers 25 Newton-metres more torque from 2.0 litres engine capacity, reaching a peak of 185 Newton-metres/136 lb-ft.

This optimisation of power and torque comes to bear clearly on the road in the BMW 116i, with the five-door now accelerating to 100 km/h in 9.9 seconds (three-door: 9.8 seconds). Top speed in either case is 204 km/h or 126 mph. At the same time fuel consumption remains at the very low level of 6.2 litres/100 kilometres (equal to 45.6 mpg imp) in the EU test cycle, with a CO_2 emission rating of 143 grams per kilometre, meaning that the BMW 116i now also complies in full with the EU5 emission standard.

2.4 Greater Efficiency, Greater Supremacy, Greater Luxury: The BMW ActiveHybrid 7.

BMW is proud to present the most supreme and luxurious rendition of hybrid technology ever seen so far in the automobile: BMW ActiveHybrid 7.

Based on the BMW 7 Series, this unique car sets new standards for efficiency in the luxury class. BMW ActiveHybrid 7 is the first car in the world to combine a V8 gasoline engine, eight-speed automatic transmission and an electric motor as a mild hybrid concept.

This symbiosis of an upgraded eight-cylinder with BMW TwinPower Turbo Technology and High Precision Injection with a three-phase synchronous electric motor gives BMW ActiveHybrid 7 overall system output of 342 kW/465 hp and maximum torque of 700 Newton-metres/516 lb-ft. Power is transmitted via an eight-speed automatic transmission, with the electric motor positioned in compact configuration between the combustion engine and the converter on the automatic transmission receiving its supply of energy from a lithium-ion battery developed especially for use in the automobile.

Precisely controlled interaction of both power sources serves to optimise not only the efficiency but also the dynamic performance and superior comfort of BMW ActiveHybrid 7. The result is a truly thrilling driving experience and, at the same time, a unique demonstration of hybrid technology with its outstanding potential. BMW ActiveHybrid 7accelerates to 100 km/h in a mere 4.9 seconds, while keeping average fuel consumption in the EU test cycle to 9.4 litres/ 100 kilometres (equivalent to 29.1 mpg imp) and restricting CO_2 emissions to just 219 grams per kilometre.

Hybrid technology also provides new options for the particularly efficient use and enjoyment of additional comfort functions. As an example, BMW ActiveHybrid 7 is the first BMW with automatic transmission to feature an Auto Start Stop function avoiding idle speed operation of the engine when at a standstill or in traffic jams. A further significant advantage is that the air conditioning and ventilation system remains fully operational also with the engine switched off, power being supplied directly through the 120-volt on-board network operating on the lithium-ion battery.

This unique concept of engine management for the first allows truly effective climate control also at a standstill in a luxury performance car, cooling the interior of BMW ActiveHybrid 7 to a significantly lower temperature right from the start, before the driver even fires the engine.

Special displays in the instrument cluster and the Control Display inform the occupants of the degree of efficiency and the current operating status of the hybrid components. Nineteen-inch light-alloy rims in aerodynamically optimised ten-spoke turbine wheel design created exclusively for BMW ActiveHybrid 7 as well as model designations on the luggage compartment lid, the C-pillars behind the side windows and on the door cutouts clearly set aside the hybrid models from their “regular” counterparts right from the start. And last but certainly not least, BMW ActiveHybrid 7 is also available in Bluewater metallic exterior paintwork exclusive to this very special model.

Like the existing models within the BMW 7 Series, BMW’s first luxury saloon with hybrid drive is entering the market in two body variants. The extended version of BMW ActiveHybrid 7 comes with wheelbase increased by 14 centimetres or 5.5", benefiting exclusively the rear-seat passengers. And to optimise the driving experience and grand touring comfort for individual requirements, both models are available with a wide range of options from the portfolio of equipment and accessories offered on the BMW 7 Series.

BMW ActiveHybrid as a major element of the BMW EfficientDynamics development strategy.
Right from the start, the regular production models in the new BMW 7 Series come with a broad scope of BMW EfficientDynamics technologies quite unparalleled worldwide in their diversity and effects. Now BMW ActiveHybrid technology offers yet another option, hybrid technology for the first time achieving the unique standard already defined by BMW in the luxury performance segment.

BMW ActiveHybrid 7 takes a truly innovative approach in ensuring outstanding efficiency in the luxury class. At the same time this unique saloon offers dynamic driving characteristics at a level by far exceeding everything hybrid cars have been able to offer so far.

Appropriate use of the electric motor also in the interest of driving comfort likewise ensures yet another significant step into the future provided by the development of hybrid components focusing on both the requirements of the luxury class and the characteristics so typical of a genuine BMW. The result is an extremely efficient luxury performance saloon at the same time offering unprecedented Sheer Driving Pleasure for a hybrid car.

BMW ActiveHybrid is an important module within the BMW EfficientDynamics development strategy offering technologies able to significantly reduce fuel consumption and emissions on every new model and at the same time enhance driving performance to an unprecedented standard.

Now the innovative drivetrain technology of BMW ActiveHybrid 7 serves to further enhance the efficiency of the car and the driving pleasure it is able to offer, with the gasoline engine and electric motor being perfectly coordinated with one another to provide a significant improvement of dynamic performance and motoring comfort and, at the same time, to capitalise on the use of energy in the fuel under a wide range of different driving conditions.

BMW uses hybrid technology wherever it can make a particularly effective contribution to the reduction of fuel consumption and emissions. As a rule, the savings potential of hybrid technology increases with the power of the combustion engine interacting with the system. Precisely this is why BMW ActiveHybrid technology in conjunction with a V8 power unit achieves a significantly greater effect than when combined, say, with a six- or four-cylinder engine.

In the case of BMW ActiveHybrid 7 precise coordination of the electric motor and the V8 power unit serves to optimise the efficiency of the combustion engine under all kinds of different loads and under many conditions. And through its use in a luxury performance saloon, BMW's sophisticated ActiveHybrid technology offers a particularly convincing rendition of its exclusive character.

Intelligent energy management optimising the generation, storage and use of electric power.

The drivetrain technology in BMW ActiveHybrid 7 ensures a particularly intelligent standard of energy management within the car serving to make maximum use of the energy contained in the fuel in generating superior driving dynamics and at the same time to increase motoring comfort to an even higher standard, thus generating Sheer Driving Pleasure from each and every drop of fuel.

The intelligent hybrid concept comprises both the generation and use of electrical energy, with loss-free storage of electric power ensured by the high-performance lithium-ion battery. Both the process of charging the battery and the supply of power to the electric motor as well as all other power-consuming items are ensured and masterminded by power electronics developed specifically for BMW ActiveHybrid 7.

Electric power generated on no extra fuel as an additional energy reserve.

BMW ActiveHybrid technology uses energy converted into heat and therefore wasted in conventional cars through the operation and use of the brakes. In terms of power generation, this unique technology is therefore an ongoing development proceeding from the Brake Energy Regeneration used by BMW on all model series in the brand's current gasoline and diesel models with BMW EfficientDynamics.

Referred to also as the recuperation of power, Brake Energy Regeneration concentrates the development of electric power for the on-board network on appropriate running conditions either with the car in overrun or when applying the brakes. Then, when accelerating, energy is fed into the on-board network from the lithium-ion battery, relieving the combustion engine of the task of converting some of the energy contained in the fuel directly into electric current, and thus enabling the engine to provide more power for the actual process of accelerating.

The result is even faster and dynamic acceleration, while the electrical energy obtained in this way is generated without any additional consumption of fuel as soon as the car is rolling or the driver applies the brakes.

As long as the driver requires only a small amount of brake power, the system uses only the electrical brake force, with the mechanical brakes being activated only when the driver presses down the brake pedal harder for more stopping power.

DSC Dynamic Stability Control serves to mastermind the balance of electrical and mechanical braking, naturally maintaining all the driver's freedom in dosing the brakes. A final – and again an important – point is that the driver does not even perceive the transition from braking with electric power to braking with the mechanical brake system.

Two interconnected on-board networks for flexible management of energy.

Electric power generated in overrun and when applying the brakes on BMW ActiveHybrid 7 in a neutral process without any additional consumption of fuel is fed into the car's two on-board networks: BMW ActiveHybrid 7 features both a conventional 12-volt on-board network fed by an AGM (absorbent glass mat) battery and a high-voltage battery featuring lithium-ion technology and operating at 120 V. This lithium-ion battery supplies power to the electric motor as soon as it is required to perform an additional drive function or serves to start the combustion engine.

The a/c compressor on BMW ActiveHybrid 7 is also integrated in the 120-volt network, with all other electrically operated functions of the car being supplied with power from the 12-volt network.

The two on-board networks are connected with one another by a voltage converter providing flexible energy management also serving to operate all electrical functions on the car on electric power generated without any additional consumption of fuel. The 12-volt battery is fed with energy from the high-voltage network, which it supports itself whenever necessary, for example when starting the combustion engine cold.

Cutting-edge energy storage technology: lithium-ion battery with superior capacity and multi-cycle operating strength.
Introducing the lithium-ion battery, BMW is taking yet a further step into the future with particularly efficient and, at the same time, flexible use of electric power in the car. This means that energy generated in the recuperation process must be fed at all times and, depending on driving conditions, in a varying rhythm to a storage unit where it is kept available for subsequent use whenever required. A further requirement is to use a battery with significant storage capacity for covering long distances without overrun or application of the brakes and without any bottlenecks in the supply process.

The AGM batteries already used in all conventional production cars with Brake Energy Regeneration offer the advantage of being able to handle frequent and irregular charge and discharge cycles without any loss of power. A mild hybrid concept, on the other hand, makes even greater demands, thus requiring a high-voltage battery with a much higher level of performance to also supply the electric motor with the energy capacity required for its drive function.

The system developed for BMW ActiveHybrid 7 is based on the most advanced lithium-ion technology meeting the greatest demands in terms of power loads and lasting operation.

Lithium-ion batteries have already proven their particularly high storage capacity and cycle resistance in many other applications such as mobile phones and laptops. The energy storage unit used in BMW ActiveHybrid 7 confirms the potential of this technology once again, this time under particularly demanding conditions in the automobile. The useful energy provided by this high-performance battery is 400 watt hours, with the battery itself comprising 35 cells as well as an integrated control unit permanently analysing the charge level and ensuring appropriate dependability under all kinds of driving conditions and throughout a wide range of temperatures.

Despite its high level of performance, the lithium-ion battery measures just 37 x 22 x 23 centimetres (14.6 x 8.7 x 9.1 inches) and weighs a mere 27 kg or 59.5 lb. Hence, it is hardly larger than a conventional car battery and is housed conveniently in the luggage compartment between the wheel arches of BMW ActiveHybrid 7, safely surrounded by a high-strength special casing. This ensures perfect protection of the battery and at the same time helps to give the car precise weight distribution.

The space required is about the same as the space taken up by the additional compressor for the rear-seat air conditioning in the conventional BMW 7 Series, with this compressor not being featured in BMW ActiveHybrid 7. The luggage compartment with its capacity of 460 litres/16.1 cu ft therefore offers adequate space for four 46-inch golf bags also in BMW ActiveHybrid 7.

Consistent optimisation: V8 power unit with BMW TwinPower Turbo and High Precision Injection.
The combustion unit featured in BMW's first hybrid luxury saloon is not only particularly powerful, but also the most efficient engine of its kind. Indeed, the combination of BMW TwinPower Turbo Technology and High Precision Injection ensures an exceptionally good balance of performance and fuel consumption, the 4.4-litre V8 applying the principle of BMW EfficientDynamics on a particularly high level.

A further advantage is that the all-aluminium power unit offers the qualities typical of an eight-cylinder in an incomparably sporting and, at the same time, comfortable rendition, combining superior power and pulling force from low engine speeds with an impressive surge of thrust and traction throughout the entire speed range, as well as excellent running smoothness. Given these features, the V8 is indeed the ideal foundation for a hybrid concept in the luxury class serving to ensure outstanding efficiency, fascinating driving dynamics and supreme motoring comfort all in one.

The power and performance characteristics of the V8 power unit result to a large extent from BMW TwinPower Turbo Technology. The engineering principle used for the first on an eight-cylinder gasoline engine with two turbo-chargers not positioned at the outside, but directly within the V-area to supply compressed air to four cylinders at a time, ensures unparalleled spontaneity in its direct response to the gas pedal. Highly efficient use of fuel, in turn, is ensured by High Precision Injection, this second generation of direct gasoline injection using piezo-injectors positioned directly next to the spark plugs in the cylinder head and delivering fuel in the combustion chambers at a pressure of 200 bar. This is the best guarantee for the extremely precise dosage of fuel and a particularly clean combustion process.

The eight-cylinder power unit featured in BMW ActiveHybrid 7 develops maximum output of 330 kW/449 hp between 5,500 and 6,000 rpm. At the same time this supreme V8 maintains huge torque of 650 Newton-metres/479 lb-ft consistently all the way from 2,000 to 4,500 rpm.

The result is supreme power and muscle starting just above idle speed, the dynamic response of the engine being further enhanced by the electric motor with its additional momentum.

The spontaneous and direct response of BMW ActiveHybrid 7 to the gas pedal particularly when accelerating from a standstill gives the car a standard of acceleration quite unprecedented among both conventional models running on a combustion engine only and existing hybrid models already in the market. Indeed, acceleration to 100 km/h in 4.9 seconds ranks the saloon close to the performance of the fastest and most thoroughbred sports cars.

Another incomparable quality is the subjective feeling of outstanding supremacy the hybrid drive system gives the driver through its direct response free of any delay. Top speed of BMW ActiveHybrid 7, finally, is limited to 250 km/h or 155 mph.

Electric motor starting and supporting the V8 power unit.
BMW ActiveHybrid 7 owes its characteristic driving features to the harmonious symbiosis of the combustion engine and the electric motor providing a smooth and efficient supply of power at all times. The electric motor supports the V8 power unit in developing even greater power and torque for superior performance. Under less dynamic driving conditions the drive power provided by the electric motor enables the combustion engine to run under more favourable load conditions for maximum efficiency, thus optimising its operating qualities. The additional power reserves serve at the same time to give this unique saloon outstanding supremacy under all conditions, the reduction of engine speed at a steady level of road speed improving not only the standard of efficiency, but also the running smoothness of the combustion engine.

The three-phase synchronous electric motor featured in BMW ActiveHybrid 7 is positioned between the combustion engine and the automatic transmission converter, and is connected firmly to the crankshaft. Shaped like a disc, the electric motor weighs just 23 kg or not quite 51 lb, its compact design ensuring full integration in the transmission housing.

The electric motor generates additional drive power of 15 kW/20 hp, with maximum power increasing to an even more substantial 20 kW/27 hp in the generator mode charging the lithium-ion battery. Peak torque, in turn, is 210 Newton-metres or 155 lb-ft.

In the driving mode BMW ActiveHybrid 7 benefits from maximum output of 342 kW/465 hp and peak torque of 700 Newton-metres/516 lb-ft. So far only much larger engines were able to provide comparable power and performance, in most cases with a corresponding increase in fuel consumption. BMW ActiveHybrid 7, by contrast, combines its significantly enhanced power and performance with an equally impressive increase in efficiency. Average fuel consumption in the EU test cycle of 9.4 litres/100 kilometres (equal to 29.1 mpg imp) and a CO_2 rating of 219 grams per kilometre proves that BMW ActiveHybrid Technology is most certainly a highly innovative and future-oriented rendition of the BMW EfficientDynamics development strategy.

Unique: eight-speed automatic transmission in combination with Auto Start Stop.

To transmit the drive power developed jointly by the V8 power unit and the electric motor, BMW ActiveHybrid 7 comes with a newly developed eight-speed automatic transmission specifically tailored to the demands and potentials of hybrid technology. This high-tech transmission of the latest standard combines gearshift comfort, sportiness and efficiency at a level never seen before.

A particular highlight of the new eight-speed automatic transmission is the innovative gearset configuration providing two additional gears and a larger overall gear range than on the six-speed automatic transmission used by BMW so far without any negative repercussions in terms of size, weight, and inner efficiency.

With the number of gears increased to eight, the differences in engine speed from one gear to the next are smaller than before, despite the overall range of gear ratios. This, in turn, benefits the sporting character of the transmission and, as a result, the dynamic performance of BMW ActiveHybrid 7 again so typical of the brand. And last but not least, the smaller differences between gears ensure an even higher standard of gearshift comfort in this new luxury saloon.

The combustion engine, electric motor and eight-speed automatic transmission form one complete unit set out for maximum efficiency in BMW ActiveHybrid 7. This is also confirmed by the innovative rendition of the Auto Start Stop function already featured as standard in BMW's four-cylinder models with manual gearshift. Now this cutting-edge technology serving to reduce both fuel consumption and emissions is combined for the first time with automatic transmission and further optimised in its efficiency.

The Auto Start Stop function automatically switches off the combustion engine when idling, reducing fuel consumption at a red traffic light or, say, in traffic congestions to absolutely zero. Then, once the driver takes his foot off the brake pedal, the combustion engine is re-started automatically.

This configuration of Auto Start Stop helps to switch off the engine more frequently and for a longer period, thus reducing fuel consumption even more effectively. This is made possible by the particularly efficient starter system, activation of the combustion engine by the electric motor supplied with power from the high-voltage battery enabling the engine to start extremely quickly and without any vibrations.

A further technology contributing to this effect is the newly developed hydraulic pulse battery for an even faster build-up of positive engagement in the automatic transmission. The delay-free ignition serves furthermore to reduce emissions while starting.

The engine is also switched off when the driver uses the Auto Hold function in stop-and-go traffic, in which case he again just has to slightly press down the gas pedal in order to re-activate the gasoline engine, which is immediately switched off the next time the driver applies the brakes.

Unrestricted climate comfort in a stopover, auxiliary cooling for pleasant starting conditions.
The climate control system in BMW ActiveHybrid 7 is supplied with power directly from the high-voltage battery, thus ensuring all the usual functions regardless of whether the combustion engine is currently running or not.

Hence, operation of the Auto Start Stop function does not mean any restrictions in terms of comfort or motoring pleasure, the driver's and passengers' desired temperature being maintained consistently within the car also in traffic congestion or when making a stopover in city traffic.

Featured as standard in BMW ActiveHybrid 7, four-zone automatic air conditioning comprises a standstill climate control function activated whenever required by remote control. This serves to cool down the interior in, say, bright sunshine before setting out in the car, the highly efficient air conditioning reducing temperature quickly and efficiently by more than 30° C, providing pleasant starting conditions in an appropriately cool and pleasant passenger compartment.

Yet a further advantage is that the a/c compressor initiates its cooling function much earlier than in a conventional car, the air conditioning in BMW ActiveHybrid 7 thus offering qualities unique the world over in terms of function and efficiency only possible with the high-performance lithium-ion battery.

Efficiency made visible: special display concept.
The innovative drive components featured in BMW ActiveHybrid 7 have a positive effect under all driving conditions on the efficiency and dynamic performance of this high-tech saloon. Their current level of efficiency and the operating mode are presented by special gauges in the cockpit and on the Control Display.

Featuring the most advanced black panel technology, the instrument cluster in BMW ActiveHybrid 7 is supplemented by an energy flow display in the lower section of the rev counter, a blue arrow showing the current status of recuperation. When accelerating, in turn, an additional graphic display illustrates the boost effect generated by the electric motor.

Using the iDrive control system in the Control Display, the driver is able to activate an even more detailed rendition of the combustion engine and the electric motor in their interaction. Over and above the current charge level of the lithium-ion battery, this display function also shows the current flow of energy – storage of energy when applying the brakes and in overrun, a shift in the load point when driving at a steady speed, discharge of energy while accelerating.

As an alternative to this graphic display, the system is also able at the touch of a button to analyse the current level of efficiency in per cent. In this case a bar diagram updated every minute shows to what extent the efficiency potential of the hybrid components have been exhausted in the last fifteen minutes.

Superior suspension technology for maximum supremacy on the road.
BMW ActiveHybrid 7 combines superior efficiency with a truly fascinating driving experience. Over and above the drive system as such, the sophisticated suspension technology featured in the BMW 7 Series gives this new saloon its unparalleled supremacy.

Interaction of a double track control arm front axle with an Integral-V rear axle offers not only numerous benefits in terms of comfort and driving dynamics, but also unusually smooth and harmonious anti-roll and transition behaviour in bends.

The long-wheelbase version of BMW ActiveHybrid 7 comes additionally with air suspension including self-levelling on the rear axle. Both models, in turn, are fitted as standard with BMW's speed-related Servotronic power steering as well as Dynamic Damping Control, the dampers adjusting to both road conditions and the driver's style of motoring.

Pressing the button on the centre console, the driver is able through Dynamic Damping Control to choose his preferred damper setting, the appropriate operation of DSC Dynamic Stability Control, the degree of gearshift dynamics on the automatic transmission, as well as the control maps on the gas pedal and Servotronic steering. In all, Dynamic Damping Control offers the choice of COMFORT, NORMAL, SPORT and SPORT + in setting up the suspension of the car.

The compound brake system on BMW ActiveHybrid 7 ensures truly excellent stopping power in every situation bringing the car safely to a standstill with minimum stopping distance even from high speeds. Inner-vented discs and swing-calliper brakes front and rear optimised for their efficiency guarantee extreme resistance to fading and maximum brake comfort.

BMW ActiveHybrid comes as standard with model-specific 19-inch light-alloy rims in aerodynamically optimised ten-spoke turbine wheel design. Likewise featured as standard, runflat safety tyres measuring 245/45 R19 at the front and 275/40 R19 at the rear enable the driver to continue even after a complete loss of pressure at a speed of up to 80 km/h or 50 mph, covering a distance, depending on the load the vehicle is carrying, of up to 250 kilometres or 155 miles. And last but certainly not least, the Tyre Pressure Indicator consistently measures tyre pressure and warns the driver whenever the pressure in the tyres drops more than 20 per cent.

Optimum visibility, all-round protection, maximum safety.
As options supplementing the bi-xenon headlights featured as standard, the High-Beam Assistant and Adaptive Headlights including a bending light function, variable light distribution and adaptive headlight range control, set new standards when motoring at night.

Again available as an option, the Head-Up Display serves to project data relevant to the driver to the windscreen of the car, enabling the driver to check out the data transmitted directly into his line of vision without even taking his eyes off the road.

Apart from frontal and hip/thorax airbags, the Occupant Safety Package featured in BMW ActiveHybrid 7 also comprises curtain head airbags at the side as well as three-point inertia-reel automatic seat belts with belt force limiters on all seats and a belt latch function at the front.

To protect the driver and passengers from cervical spine injury in the event of a rear-end collision, the front seats come with crash-activated headrests and ISOFIX child seat fastenings are featured as standard on the rear seats.

The safety concept for the car's hybrid components is equally comprehensive, all components in the high-voltage system featuring full insulation as well as special plug connectors. The lithium-ion battery, in turn, is protected by a high-strength steel housing and is positioned far away from all kinds of accidents in the luggage compartment, as is already confirmed by a wide range of crash tests. And last but not least, the entire high-voltage system is automatically switched off within fractions of a second both in a function breakdown and in the event of a collision.

Perfectly networked: BMW ConnectedDrive with innovative functions.
As an option BMW ActiveHybrid 7 is naturally available with the innovative driver assistance systems provided by BMW ConnectedDrive, including Lane Change Warning, Lane Departure Warning, Speed Limit Info, BMW Night Vision even able to detect individual persons, a back-up camera and BMW Side View. At the same time BMW ConnectedDrive also comprises a wide range of innovative features and technologies networking the occupants with the car itself and the surrounding world in order to provide both maximum comfort as well as optimised use of the infotainment services and enhanced safety.

BMW ActiveHybrid 7 is likewise available with the full range of mobility services including BMW Assist with its telephone enquiry service and Enhanced Emergency Call function allowing automatic detection of the car, BMW Online, BMW TeleServices and unrestricted use of the internet in the car.

The wide range of features and equipment available for the BMW 7 Series enables the customer to personalise his or her car to the highest standard. The highlights include sophisticated navigation functions, audio and rear seat entertainment systems, the extra-large, contoured sliding roof as well as active seats for the driver and front passenger or, respectively, climate and massage seats at the rear.

Particularly the extended wheelbase version of BMW ActiveHybrid 7 offers maximum driving comfort, extension of the car's wheelbase by 14 centimetres or 5.5" ensuring particularly comfortable access to the rear passenger compartment. And thanks to the special design of the roofline and C-pillars, the side view of the longer version, despite greater headroom for the rear-seat passengers, retains the overall impression of the "regular" saloon with its normal wheelbase.

Both models are also available with the wide range of options provided by BMW Individual comprising features such as BMW Individual Merino fine-grain leather standing out not only through its particular material and colour scheme, but also through different seam patterns and stitching on the seats, the instrument panel and the door linings.

Matching the various colours of leather, there is also a wider colour range for the BMW Individual Alcantara roof lining. Exclusive trim options, BMW Individual exterior colours and 20-inch BMW Individual light-alloy wheels, finally, round off the choice of particularly stylish options.

Best of Hybrid: flexible development for optimised concepts on each model.

The hybrid components featured in BMW ActiveHybrid 7 were developed jointly by BMW and Daimler in a cooperation project seeking to develop and test components for hybrid drive in luxury performance cars. Apart from the electric motor and the lithium-ion battery, this joint venture also served to develop the power electronics for the high-voltage network featured in BMW ActiveHybrid 7.

Each manufacturer subsequently integrated the hybrid components into the respective model in accordance with individual, brand-specific requirements. These unique characteristics also come out clearly in BMW ActiveHybrid 7 through the combination of an eight-cylinder power unit with electric drive.

BMW ActiveHybrid is based on a modular principle which, following the Best of Hybrid strategy, ensures perfect integration of the optimum component in various vehicle concepts. Hence, the mild hybrid concept of BMW ActiveHybrid 7 is tailored ideally to the specific requirements of this model as is the full hybrid concept for BMW ActiveHybrid X6, likewise reaching production standard in the year 2009.

BMW ActiveHybrid 7 is built at BMW Plant Dingolfing about 70 miles north-east of Munich. Also building all other versions of the BMW 7 Series (and a number of other models), BMW Plant Dingolfing offers a truly unique standard of excellence confirmed by numerous prizes and awards in the use of innovative production technologies and the fulfilment of supreme quality requirements. Precisely for this purpose, the Plant combines the most advanced, automated production technologies with the craftsmanship of specially trained associates in a most intelligent manner. And having won the Best Factory/Industrial Excellence Award in 2008, BMW Plant Dingolfing also stands out through a supreme level of flexibility, efficient production processes and environmentally-friendly methods in production.

2.5 Fascinating Efficiency: The BMW ActiveHybrid X6.

BMW ActiveHybrid technology combines superior driving dynamics with equally superior efficiency pointing far into the future, brining together both of these qualities to offer a truly unique driving experience.

The world's first Sports Activity Coupé with full hybrid drive therefore capitalises on the options offered by combining the combustion engine and the electric motor with a standard of perfection never seen before. BMW ActiveHybrid technology offers a significant increase in driving dynamics and at the same time reduces fuel consumption by approximately 20 per cent versus a comparable vehicle powered by a combustion engine alone. The result is even greater Sheer Driving Pleasure combined with enhanced fuel economy and CO_2 management providing the kind of progress to make the BMW ActiveHybrid X6 a typical BMW in the hybrid market.

The overall drive system featured in the BMW ActiveHybrid X6 consists of a 300 kW/407 hpV8 gasoline engine with BMW TwinPower Turbo Technology and two electric synchronous motors delivering 67 kW/91 hp and, respectively, 63 kW/86 hp. Maximum system output is 357 kW/485 hp, peak torque is 780 Newton-metres/575 lb-ft.

Precisely controlled interaction of the three power units optimises the overall efficiency of the BMW ActiveHybrid X6 at all speeds, with acceleration from a standstill to 100 km/h in 5.6 seconds. Top speed of the BMW ActiveHybrid X6 is limited electronically to 236 km/h or 146 mph (250 km/h or 155 mph with the optional Sports Package, with average fuel consumption in the EU test cycle of 9.9 litres/100 km (equal to 28.5 mpg imp) and a CO_2 emission rating of 231 grams per kilometre.

BMW's first full hybrid model is able to run exclusively on electric power – and that is entirely free of CO_2 – up to a speed of 60 km/h or 37 mph, with the combustion engine being activated automatically whenever required.

Ideal variation of the two drive modes for enhanced efficiency and dynamism is ensured by The two-mode active transmission provides the ideal combination of the two power modes for enhanced efficiency and dynamic performance at all times. With the two electric motors, three planetary gearsets and four multiple-plate clutches, drive power is transmitted through a seven-gear

automatic transmission operated by the driver of the BMW ActiveHybrid X6 via an electronic gear selector lever and, respectively, shift paddles on the steering wheel.

BMW's intelligent xDrive all-wheel-drive system spreads out engine power variably between the front and rear wheels.
The electric motors receive their energy from an NiMH high-performance battery positioned beneath the floor of the luggage compartment and feeding electric power also to the car's on-board network. Luggage compartment capacity is therefore the same as on the "regular" BMW X6 with its combustion engine. When applying the brakes or taking back the gas pedal kinetic energy is converted into electrical energy and is stored in the high-performance battery. To provide this function either one or both of the electric motors acts as a generator, feeding electric power generated without the slightest increase in fuel consumption directly into the high-voltage battery. Subsequent use of this energy to provide extra drive power significantly reduces the consumption of fuel.

BMW ActiveHybrid technology raises the development of drive systems enhancing both efficiency and dynamism in one to a new, unprecedented standard, clearly confirming BMW's superior competence in development in this area. Now the introduction of this innovative technology in such an exceptional vehicle concept adds a particularly fascinating motoring experience through the efficiency achieved in this way. Through its size, character and driving dynamics, the world's one and only Sports Activity Coupé is particularly well-suited to combine the progressiveness and the potential of BMW ActiveHybrid technology to a standard never seen before.

Unique efficiency ensured by two-mode active transmission.
BMW ActiveHybrid technology has been developed specifically for use in a particularly dynamic vehicle in this segment and for a broad range of practical use going far beyond city traffic as such. The big advantage, therefore, is the overall optimisation of drivetrain efficiency in all speed ranges and under all conditions.

The two-mode active transmission is based on an ECVT (electric continuously variable transmission) operating in two separate modes. One mode is for setting off with particular power and for driving at low speeds, the second is for motoring at high speeds.

When setting off only one of the two electric motors is activated. Then, as soon as the driver requires more power, the second electric motor automatically activates the combustion engine and subsequently serves as a generator providing a permanent supply of electric power.

When driving steadily at a higher speed most of the power required is delivered by the combustion engine in a largely mechanical process. Here again, one of the two electric motors acts as a generator.

Together with the mechanical components, the electric motors form a joint transmission unit providing the optimum transmission ratio at all times as a function of driving conditions. The mechanical link within the two-mode active transmission is provided by three planetary gearsets in a configuration dividing the drive power generated by the combustion engine and the two electric motors into two transmission modes and therefore ensuring a degree of variability in combining the two power sources conventional hybrid drive would not be able to provide.

The two operating modes of the electric motors are supplemented and enhanced by fixed transmission ratios providing a total of seven gears for full use of the highly efficient hybrid function throughout the vehicle's complete range of operation and at the same time maintaining the driving performance so typical of BMW.

Conventional but unique all in one: V8 gasoline engine with BMW TwinPower Turbo Technology and High Precision Injection.
The combustion engine is a technically unique eight-cylinder featured for the first time in the BMW X6 xDrive50i. The world's first V8 gasoline engine with two turbochargers in the V-section between the two rows of cylinders excels in particular through its smooth development of power setting in from the start and continuing in an ongoing surge throughout the entire speed range. The exceptionally spontaneous and direct response of this V8 with BMW TwinPower Turbo Technology results directly from the compact configuration of the engine allowing short manifolds as well as large cross-sections on the intake and exhaust side.

Displacing 4.4 litres, this outstanding eight-cylinder delivers maximum output of 300 kW/407 hp consistently maintained between 5,500 and 6,400 rpm. Superior torque of 600 Newton-metres/442 lb-ft is maintained all the way from 1,750 to 4 ,500 rpm, with High Precision Injection ensuring precise supply of fuel at all times.

Piezo-injectors positioned in the middle between the valves ensure a smooth, efficient and clean combustion process, the V8 naturally fulfilling both the European EU5 standard as well as the ULEV II limits in the USA.

Compared with the power unit featured in the BMW X6 xDrive50i, this new engine has been modified in numerous respects to the specific requirements of the BMW ActiveHybrid X6. The first point is that there is no starter, no alternator and belt drive for the climate compressor and hydraulic pump on the power steering. The main and low-temperature circuits in the cooling system have been modified for all-electric operation, the low-temperature circuit already serving to cool the charge air in the combustion engine being used additionally to cool the power electronics.

A specifically designed hybrid engine cover, finally, marks a clear difference versus the power unit in the BMW X6 xDrive50i.

Electric motors for enhanced performance on no extra fuel.
When accelerating the eight-cylinder power unit of the BMW ActiveHybrid X6, joining forces with the electric motors, ensures optimum efficiency and dynamic performance. As soon as the driver requires more power the two electric motors fed by the high-voltage energy battery supply additional torque for enhanced performance. This boost effect significantly increases the overall output of the BMW ActiveHybrid X6, without any increase in fuel consumption.

While the two electric motors have almost the same output, they have been modified in their performance characteristics to meet individual requirements. The power delivered is 67 kW/91 hp and. respectively, 63 kW/86 hp, with peak torque of 260 Newton-metres/192 lb-ft and 280 Newton-metres/206 lb-ft.

The electric motors support the combustion engine effectively throughout the entire speed range, the additional electrically generated drive power serving to reduce the power output required on the combustion engine when driving steadily at a higher speed. This shift in load is perfectly controlled at all times to give the overall system enhanced efficiency and its maximum effect under practical driving conditions.

The electronic control unit is also able to provide a consistent, ongoing surge of power, maximum power being generated when shifting gears through the so-called response boost effect. When kicking down the accelerator for maximum acceleration, the control unit generates stationary boost right from the start in the initial downshift phase, interaction of response boost and stationary boost ensuring a very spontaneous and direct response to every movement of the gas pedal.

Maximum system output is 357 kW/485 hp, with peak torque of 780 Newton-metres/575 lb-ft. This makes the BMW ActiveHybrid X6 the most powerful hybrid vehicle in the world, with acceleration from a standstill to 100 km/h in just 5.6 seconds and top speed is limited electronically to 236 km/h or 146 mph (or, respectively, 250 km/h or 155 mph with the optional Sports Package).

The unique positon of BMW ActiveHybrid X6 within the BMW X segment as a whole follows very clearly and convincingly from the comparison of these performance figures, on the one hand, with the vehicle's fuel consumption and emission ratings, on the other. The BMW ActiveHybrid X6 combines its supreme dynamism with equally fascinating efficiency, with fuel average fuel consumption in the EU test cycle of just 9.9 ltr/100 km (equal to 28.5 mpg imp) and a CO_2 rating of 231 grams per kilometre.

All-electrical driving mode reducing emissions to zero.
With its combination of two-mode active transmission and high-performance battery, the BMW ActiveHybrid X6 is able to run on its electric motors alone. This makes it a zero emission vehicle under such conditions, fulfilling even the strictest requirements foreseen for the future and ensuring the highest conceivable level of mobility.

The BMW ActiveHybrid X6 may run on electric power alone regardless of the ambient temperature, minimum operating temperatures being required only for the engine coolant, transmission fluid and high-voltage battery. A further requirement is that the high-performance battery is adequately charged.

Top speed in the electric mode is 60 km/h or 37 mph, maximum range is 2.5 kilometres (1.6 miles).

While driving electrically, the BMW ActiveHybrid X6 retains all its safety and comfort functions. The brakes remain fully operative thanks to electronic vacuum supply, not requiring the combustion engine to develop their full effect. The same applies to the EPS Electronic Power Steering, with steering assistance being generated as required and with maximum efficiency by an electric motor.

Even the air conditioning remains fully available without any restrictions, running efficiently on an electrical climate compressor. And since the high-performance battery supplies electric power to the complete 12-volt on-board network through a voltage converter regardless of the driving mode, all other power-consuming items such as the lights and the on-board entertainment system remain fully functional at their usual, consistent level.

Recuperation: electric power generated without additional fuel consumption.
The BMW ActiveHybrid X6 features an enhanced version of Brake Energy Regeneration already used in BMW's current models running on a combustion engine alone, generating the electric power saved in the high-performance battery. In this case the electric motors act as generators in overrun and when applying the brakes in order to feed electric power into the high-voltage battery unit, again in the interest of maximum efficiency.

This uses energy otherwise simply lost in conventional vehicles as heat escaping through the brakes – and depending on road speed, one or both of the electric motors may perform this function.

The power delivered by the generator is approximately 50 kW, about 25 times as much as the power provided so far by Brake Energy Regeneration.

Generator delivering electrical brake power.
In the generator mode the two electric motors supply a lot of the energy required to slow down the vehicle whenever necessary. Indeed, the stopping power generated in this way is up to 3 metres/sec2 or, respectively, 0.3 g in a purely recuperative process, significantly reducing the load acting on the mechanical brake system.

Sensotronic Brake Actuation (SBA) in the BMW Active Hybrid X6 may be used at any time without a direct mechanical connection between the brake pedal and the hydraulic circuit. Pedal movement is recorded by sensors and split up by a control unit into brake power generated in a regenerating and in a hydraulic process. At the same time an integrated pedal force simulator generates the usual brake feeling for the driver as an additional factor in this brake-by-wire solution.

The active brake servo builds up brake pressure with electrical control according to the signals emitted by the control unit. To ensure brake power assistance also in the all-electric mode, the BMW ActiveHybrid X6 comes furthermore with an electrical under-pressure pump replacing the vacuum pressure in the intake system of the combustion engine on a conventional vehicle. A mechanical fallback function, in turn, guarantees full operation of the brake system in the event of a failure or deficiency in the electrical system, in which case the stopping power required is generated by the hydraulic system alone, like on a conventional vehicle.

The primary task of the SBA system is to split up the brake power required by the driver into a regenerating and a hydraulic brake factor. Via the xDrive powertrain, the hybrid system in the BMW ActiveHybrid X6 is able to transmit brake forces to all four wheels generated by the stopping power of the recuperative electric motors. And whenever the stopping power required exceeds the level of 3 metres/sec2, the control unit builds up additional brake force through the mechanical brake by means of the active brake servo.

In braking situations critical to driving stability the control unit receives additional signals from the DSC Dynamic Stability Control, intervening in the brakes and engine management to keep the vehicle safely on course. This ensures safe braking manoeuvres under all conditions, with all driving stability systems developing their complete effect when required regardless of whether the stopping power needed is generated electrically or hydraulically.

A further point is that all driving stability systems are tailored in their operation to the dynamic character of the Sports Activity Coupé also on the BMW ActiveHybrid X6. DTC Dynamic Traction Control selected at the touch of a button, for example, provides maximum traction and drive power on loose surfaces such as snow or sand thanks to its higher slip thresholds. And with the DTC mode activated, the driver may opt for a particularly sporting style of motoring all the way to a controlled power slide in bends.

BMW xDrive: intelligent all-wheel drive for extra performance, optimum driving stability and supreme traction.
The sports-oriented driving behaviour of the BMW ActiveHybrid X6 is also attributable to xDrive all-wheel-drive technology. Permanent all-wheel drive with electronically controlled, variable distribution of drive power front-to-rear gives the BMW ActiveHybrid X6, like all BMW X models, not only superior traction, but also enhanced driving dynamics.

BMW xDrive qualifies as an intelligent all-wheel-drive system in particular through the smooth division of drive power ensured by a power divider with an electronically controlled multiple-plate clutch feeding the appropriate level of power to the right axle with optimum wheel contact and grip on the road.

Under normal conditions BMW xDrive spreads out drive power to the front and rear axle in a 40:60 split, sensors consistently measuring wheel slip both front and rear. The system is able to vary the balance of drive power within fractions of a second, BMW xDrive, unlike conventional all-wheel-drive systems, thus looking ahead and not only responding when a wheel is already spinning.

Benefiting from these abilities, BMW xDrive raises the driving dynamics of the BMW ActiveHybrid X6 to an even higher level by recognising even the slightest tendency to over- or understeer right from the start and taking appropriate counter-action.

EPS Electronic Power Steering for even greater driving comfort.
The BMW ActiveHybrid X6 is the first BMW X model to feature EPS Electronic Power Steering. This allows active steering assistance both when driving with the combustion engine and in the all-electric mode.

EPS provides optimum steering assistance under all conditions to give the driver that special feeling so typical of the BMW brand. Another advantage is the further reduction of fuel consumption, EPS significantly reducing the energy required for steering assistance compared with conventional, hydraulic power steering, since Electronic Power Steering only becomes active when steering assistance is actually required or desired by the driver. So when driving straight ahead in a straight line, for example, the electric motor does not consume any energy whatsoever.

Electronic Power Steering on the BMW ActiveHybrid X6 comes complete with fully integrated speed-related Servotronic steering assistance, the reduction of assistance at high speeds ensuring not only safe directional stability but also extremely precise steering behaviour in bends as well as the safe feeling at high speeds again so characteristic of a BMW. At low speeds, on the other hand, for example when parking, extra power assistance significantly reduces the steering forces required.

Liquid cooling for even greater performance on the high-performance battery.
The high-voltage battery featured in the BMW ActiveHybrid X6 comes in nickel-metal hydrid technology (NiMH). Capacity is 2.4 kWh, with 1.4 kWh available actively for practical use. Maximum output, in turn, is 57 kW, with the battery's control unit permanently determining the output level currently available as well as the charge status of the battery.

The high-performance battery comes with its own liquid cooling system incorporating a heat exchanger to cool the battery through the flow of air from the outside and, additionally, through the cooling circuit in the air conditioning. These two circuits are activated either individually or in combination with one another, depending on current requirements, the control unit selecting the most effective and efficient cooling option as a function of ambient temperature and the temperature of the high-voltage storage unit.

Cooling by the air conditioning is activated by an appropriate switch valve, with the electrical climate compressor being switched on automatically whenever required. The interior and the high-voltage battery being cooled separately of one another, cooling is far more efficient than with a system using air cooling only, raising the energy storage medium to a far higher level of performance and retaining the hybrid functions longer in extreme weather and whenever the driver prefers a very sporting style of motoring. Ultimately, this gives BMW ActiveHybrid X6 an outstanding potential in driving dynamics far superior to other hybrid vehicles in the market.

Intelligent energy management and integral safety concept.
Power electronics developed especially for BMW ActiveHybrid technology ensures energy management on board the BMW ActiveHybrid X6 both very efficient and flexible in use. The electronic control system consistently controls the distribution of energy as a function of ambient conditions, the status of the vehicle, and the demands made by the driver. The most important incoming and control factor for the operating strategy chosen is the charge status of the high-performance battery saving the electrical energy generated through recuperation.

The BMW ActiveHybrid X6 naturally complies in full with the integral safety concepts developed for hybrid vehicles by BMW. With central control functions being integrated both in the power electronics and the energy battery, the system has the ideal starting point for fulfilling all kinds of international crash test standards as well as the demanding internal standards of the BMW Group, in particular guaranteeing the highest level of operating safety on all components in the high-voltage on-board network.

Some of the features of this safety concept are the different colours of cables to avoid any confusion, the presentation of clear safety warnings and the all-round cover on the entire system using extra-large insulation panels and newly developed connectors.

The high-voltage battery is housed in a high load-resistant steel casing and is fitted firmly inside the car, just above the rear axle at an extremely safe point for the event of a collision. The status of the storage modules is constantly supervised by integrated safety electronics, the driver being informed immediately of any malfunction and, wherever necessary, the entire system being automatically discharged and deactivated.

In the event of a collision, the system is switched off automatically within fractions of a second, the car's central safety electronics assessing the severity of an accident and ensuring a safe operating mode as a function of current, individual requirements.

Special hybrid drive Auto Start Stop function.
In city traffic the BMW ActiveHybrid X6 can be run in the all-electric mode without using the combustion engine. A further advantage is that the vehicle comes with a new generation of Auto Start Stop technology featured here for the first time. Tailored specifically to the requirements of a hybrid car, this new Auto Start Stop function allows a much higher standard of comfort and is available more often than the conventional system. Automatic deactivation of the combustion engine at a road junction or at the traffic lights does not in any way impair the driving experience, just as the V8 power unit will start again immediately as soon as the driver presses down the gas pedal.

BMW ActiveHybrid X6 provides the Auto Start Stop function consistently at all outside temperatures, no matter how cold or how hot.

As long as the engine is switched off, the electric climate compressor automatically maintains the climate and temperature desired within the passenger compartment. All other electrically operated functions are also maintained, with the on-board network being consistently supplied with power from the high-voltage storage unit. The only way to deactivate the special hybrid Auto Start Stop function is by choosing the manual gearshift mode on the automatic transmission.

Additional displays informing the driver of the operating status and efficiency of the hybrid system.
Operation of the hybrid system and current operating conditions are presented clearly and understandably in the displays. The most important information is shown in the central instrument cluster, clearly separated according to the various operating modes. Further information and technical explanations, in turn, are shown in the Info Display in the centre console.

The drive displays are split up into a conventional rev counter for the combustion engine and special displays for electric drive in the lower part of the instrument cluster. Clear visual presentation of these functions shows the driver that the vehicle is ready to go. The electric drive displays relevant to the driver are the charge status of the high-voltage storage unit, the recuperation display, the support provided by the electric motors when accelerating through their

boost function, as well as the driving stages in the all-electric mode. In the Control Display this information is supplemented by additional data on current operating conditions and the current flow of energy.

Specific set-up of the suspension and the lightweight brakes.
The chassis and suspension of the BMW Active Hybrid X6 is largely the same as the technology already featured on the BMW X6 xDrive50i. The front axle is a double track arm configuration ensuring excellent driving dynamics, superior motoring comfort and smooth directional stability. The Integral IV rear axle has been modified to reflect the specific characteristics of the hybrid model in terms of weight distribution and drive power, guaranteeing absolute supremacy on the road also ensured by self-levelling with air suspension providing a consistent ride height also when carrying a heavy load.

Lightweight brakes decelerate the BMW ActiveHybrid X6 by means of swing-calliper brake discs incorporating covers and pistons made of aluminium. Brake disc diameter is 385 millimetres or 15.2" up front and 345 millimetres or 13.6" at the rear. The entire brake system ensures a high standard of comfort in applying the brakes and extreme resistance to fading.

Consistent lightweight engineering serves to reduce unsprung masses and improve the vehicle's driving comfort and agility.

Very attractive 19-inch light-alloy rims in V-spoke design come as standard, and 20-inch light-alloy rims in aerodynamically optimised Streamline design have been developed exclusively for the BMW ActiveHybrid X6 as an option. In each case the tyres are runflat tyres enabling the driver to continue to the workshop even after a complete loss of pressure. And it almost goes without saying that the BMW ActiveHybrid X6 comes as standard with a Tyre Defect Indicator incorporating individual tyre pressure control.

Bodyshell and safety: intelligent lightweight construction, optimised occupant safety.
Intelligent lightweight construction and a special structure for maximum solidity also characterise the bodyshell of the BMW ActiveHybrid X6. Apart from frontal and hip thorax airbags, curtain head airbags at the side are also standard within the interior.

The BMW ActiveHybrid X6 comes with three-point inertia-reel seat belts on all seats featuring belt force limiters and belt latch tensioners on the front seats. To protect the occupants from cervical spine injury in the event of a collision at the rear, the front seats feature crash-activated headrests, the rear seats come as standard with ISOFIX child seat fastenings.

All restraint systems are masterminded by central safety electronics, rollover sensors serving to activate the curtain airbags and belt latch tensioners in the event of an impending rollover.

Featured as standard, dual bi-xenon headlights not only ensure optimum illumination of the road ahead in the dark, but also provide a daytime light function through their corona rings. The BMW ActiveHybrid X6 furthermore comes as standard with a light and rain sensor automatically controlling the vehicle's lights and screenwipers as required. Additional comfort at night is provided by the High Beam Assistant featured as part of BMW ConnectedDrive.

Another feature available as an option is Adaptive Headlights following the road ahead in providing exact the right illumination. This option comes complete with Bending Lights and variable light distribution broadening the light beam to provide a wider range of vision as a function of road speed. As an option, finally, information relevant to the driver may be projected on to the windscreen via the Head-Up Display in a particularly ergonomic position.

Over and above safety-relevant driver assistance systems, BMW ConnectedDrive offers a range of further services enhancing driver comfort and allowing optimised use of the infotainment systems in the BMW ActiveHybrid X6. This range of mobility services comprises features such as BMW Assist with a telephone enquiry service and an Enhanced Emergency Call function including automatic detection of the vehicle's location, BMW Online, BMW TeleServices as well as unrestricted use of the internet in the vehicle.

Supreme level of standard equipment including the Professional navigation system and comfort seats.
The BMW ActiveHybrid X6 comes as standard with the BMW Professional navigation system masterminded via iDrive likewise featured as standard or, respectively, with enhanced voice control. Using BMW Routes, in turn, BMW ConnectedDrive customers are able to retrieve the most beautiful routes directly in the car via BMW Online at the touch of a button. And apart from navigation data, the user is also able to save his personal music collection on a hard disc within the car offering a capacity of no less than 80 GB.

Other features coming as standard are electrically adjustable comfort seats with a memory function, cruise control and Park Distance Control. A further feature likewise coming as standard is an electrical opening and closing function on the tailgate.

Side View and Top View are available as optional extras.
Other options include an extended range of nappa leather upholstery in an exclusive Ivory White/Black colour combination with blue double stitching, a glass sliding/vent roof, and a towbar with a removable ball head.

The BMW ActiveHybrid X6: Sports Activity Coupé of the highest standard, BMW ActiveHybrid with maximum efficiency.

The BMW ActiveHybrid X6 combines an innovative vehicle concept with cutting-edge drivetrain technology to provide a truly unique driving experience. The enhancement of both dynamic performance and all-round efficiency gives BMW's Sports Activity Coupé, as unique as it already is, additional fascination and appeal, BMW ActiveHybrid technology achieving a supreme level of efficiency in this outstanding model, confirming BMW's great competence in the area of drivetrain development.

From outside the BMW ActiveHybrid X6 differs through only a few details from the "regular" models with their conventional drivetrain technology. With its elegant and dynamically flowing roofline and features typical of a BMW X model, the Sports Activity Coupé offers a uniquely sporting rendition of this very special vehicle with its unprecedented character also in the full hybrid variant.

The space available and driving comfort likewise reflect the supreme standard this dynamic four-seater already offers in the versions already available. And apart from the special hybrid displays in the instrument cluster, door entry trim covers proudly bearing the designation "BMW ActiveHybrid" on the driver's and front passenger's doors add a particular highlight and sign of distinction.

Particularly the very impressive Powerdome on the engine compartment lid ensures a clear distinction of this very special vehicle from outside, "ActiveHybrid" model designations on the tailgate trim bar and the front doors as well as body paint in exclusive Bluewater metallic offered for the first time on a BMW X6 likewise alluding to the very special character of this very special vehicle.

3. BMW Model Initiative: Innovative Concepts for Even Greater Sheer Driving Pleasure.

3.1 Spontaneous Joy of Motoring: The BMW X1.

For the first time the features and qualities so typical of a BMW X model are also available in a premium vehicle in the compact segment. Indeed, the BMW X1 is entering the market with the assignment to offer the Sheer Driving Pleasure so characteristic of BMW with a new standard of quality also in this segment of the market. The latest member in the family of BMW X models therefore stands for versatile, sporting performance and supreme agility in an urban environment and beyond. In its style and appearance, the BMW X1 is the epitome of self-confident elegance, sophisticated function, and stylish, modern character.

With its superior drivetrain technology also comprising BMW's intelligent xDrive all-wheel-drive system and its both modern and variable interior, the BMW X1 offers ideal qualities for truly versatile mobility ensuring a genuine driving experience.

The elevated seating position and the driver-oriented design of the cockpit enhance the emotional driving experience. Sophisticated materials, strikingly contoured surfaces and BMW iDrive fitted in conjunction with one of the optional navigation systems accentuate the premium character of the BMW X1 right from the start.

At the rear, the spacious compartment offers three full-sized seats. Folding down the rear-seat backrest split into three sections and adjustable also for angle, the driver and passengers are able to increase luggage compartment capacity from 420 litres or 14.7 cubic feet all the way to 1,350 litres or 47.3 cu ft. Numerous storage facilities and boxes add even greater function and practical value, while the optional Panorama glass roof ensures an even more generous feeling of space.

The BMW X1 sets new standards for driving pleasure in the premium compact segment. Benefiting from BMW EfficientDynamics, it also offers the most favourable balance of performance and fuel economy within the segment of BMW X models.

The BMW X1 is entering the market with a choice of one six-cylinder gasoline engine and three four-cylinder diesels. The straight-six gasoline power unit featured in the BMW X1 xDrive28i boasts a composite magnesium/aluminium crankcase, VALVETRONIC valve management and dual-VANOS, and delivers

maximum output of 190 kW/258 hp. The BMW X1 xDrive23d comes with a 150 kW/204 hp diesel featuring BMW TwinPower Turbo and common-rail fuel injection. The diesel engines in the BMW X1 xDrive20d delivering 130 kW/177 hp and in the BMW X1 xDrive 18d with 105 kW/143 hp, finally, also come with common-rail fuel injection as well as a turbocharger with variable intake geometry. These engines are also featured in the BMW X1 sDrive20d and the BMW X1 sDrive18d with the latter, equipped with rear-wheel drive, offering average fuel consumption in the EU test cycle of only 5.2 litres/100 kilometres (54.3 mpg) and a CO_2 rating of 136 grams per kilometre as the most efficient and economical option for spontaneous driving pleasure.

Body design: versatile sportiness, self-confident elegance.
The driving characteristics of the BMW X1 combine superior agility with versatile sportiness – and precisely these features also come out in the design of the new model. At the same time the self-confident elegance so typical of the BMW X1 forms a perfect match with modern function all round. The front end, the side and the rear end flow smoothly into one another, striking and powerful lines creating a sleek and stylish connection between the various body elements.

Measuring 4.45 metres or 175.2" in length, this unique five-door stands out clearly from every angle as a fully-fledged BMW X model, despite its body dimensions smaller than on the BMW X6, the BMW X5, and the BMW X3. Square-contoured wheel arches, greater ground clearance, the slender protection cover on the lower part and the upright BMW kidney grille clearly symbolise the robust qualities of the new model, while long wheelbase of 2.76 metres/108.7" and the low-slung rear window create sleek and stretched proportions testifying to the sporting character of the BMW X1. This sporting character is also borne out by the excellent aerodynamic qualities of the new model resulting, not least, in a drag coefficient of 0.32 on the BMW X1 sDrive20d, the BMW X1 xDrive18d, and the BMW X1 sDrive18d.

Through its strong and muscular bumper and the BMW kidney grille merging smoothly with all surrounding elements, the front end spells out powerful presence right from the start. The widely flared wheel arches and the strongly contoured engine lid with its contour lines stretching towards the kidney grille give the BMW X1 a particularly powerful and muscular appearance.

Cut off sharply at the top, the dual round headlights again so typical of BMW, together with the lights band emphasising the sheer width of the vehicle, create a particularly powerful and focused look. A three-dimensional surround serves to additionally emphasise the contours of the headlights.

The foglamps positioned high up and far to the outside are embedded deep within the bumper. Beneath the large air intake, finally, a silver-coloured underfloor protection cover again confirms that this is a genuine BMW X model in every respect.

The side view of the BMW X1 is characterised by three striking lines. The contour line on the level of the door openers rising sharply towards the rear end interacts with the sill-line moving up only slightly to create a dynamic wedge shape. In between, a highly expressive character line adds a special touch through its progressive flow, first moving down, then moving up slightly and finally rising dynamically up front of the rear wheel arch.

This character line continues in the graphic surround of the “Hofmeister kick” so typical of BMW on the base of the C-pillar, the character line and window graphics thus forming one optical unit to give the BMW X1 a particularly agile and compact look. Powerful wheel arches and horizontal lines emphasise the width of the elaborately chiselled rear end. The individual surfaces and body sections are characterised by smooth rounded edges, while the rear light clusters in typical L-shape are re-interpreted by sharp, almost jagged lines. Like the headlights at the front and the rear section of the side window graphics, the rear light clusters boast a special surround at the outside adding further flair to their contours. And finally, a silver-coloured underfloor protection plate bears testimony to the robust character so typical of a BMW X model also at the rear.

The optional X Line available for the BMW X1 offers a particular touch of style and class, featuring inserts in the front and rear bumpers finished in body colour, similar inlays in the side-sills and a painted trim bar separating the lower air intake in a horizontal line. Likewise available as an option, the roof railing comes in this case in black matt or eloxy silver.

Interior design: sophisticated, modern, functional, generous.
Graphic elements full of powerful expression, generous trim surfaces and dynamic lines give the interior of the BMW X1 a truly sporting and youthful appearance. The instrument panel is subdivided by horizontal lines creating a special structure continuing into the door panels which, by accentuating the sheer width of the vehicle, heightens the generous feeling of space. The Control Display on the optional iDrive control system is also finished in innovative style, blending smoothly and harmoniously into the dashboard.

The elevated seating position so typical of the BMW X models ensures comfortable and convenient access at all times. Optimised all-round visibility of traffic conditions around the car, in turn, gives the driver an even greater and more convincing feeling of supremacy. This feeling is further enhanced by his eyes looking down from above at the dashboard curved slightly to the front.

The special design of the centre console and the dashboard area around the cockpit offers an appropriate reinterpretation of the driver orientation so typical of a BMW. The first point is that through its special look and configuration, the centre console clearly separates the driver's and front passenger's areas. The controls for air conditioning and the audio system are inclined slightly towards the driver, while a trim bar in contrasting colour flowing out of the lower section of the dashboard surrounds the instrument cluster including the binnacle at the top to form one complete unit, safely and reliably guiding the driver's eyes to the road ahead.

The BMW X1 comes with a choice of seven body colours. The interior, in turn, is finished in both powerful and natural colours, the wide range of colours available giving the customer free rein in customising the car to his own individual style.

As an alternative to the seat upholstery finished as standard in Elektra cloth, there is also Median cloth in sporting striped design as well as Nevada leather. Then the customer also has the choice of no less than seven trim colours and five variants of trim bars giving the car either a particularly sporting, modern, extroverted or elegant touch.

Yet a further special feature is the Cool Elegance Design Package available on the BMW X1, incorporating highlights such as sports seats in Oyster-coloured leather upholstery and black/yellow piping on the backrest as well as trim bars in Bright Wave wood. In this case the lower section of the instrument panel and the centre console likewise come in Oyster.

A wide range of open storage boxes, trays and cupholders on the centre console as well as large open door compartments with integrated holders for bottles underline the functional character of the BMW X1. Through its generous dimensions, the rear-seat bench offers comfortable space for up to three passengers.

As a further advantage the interior of the BMW X1 may be re-configured easily and quickly whenever required to meet all kinds of transport requirements. Loading is easy and convenient through the large tailgate, the wide opening for the luggage compartment and the low loading sill, even when taking along bulky

objects. The backrest angle at the rear may be adjusted in numerous stages by up to 30o – and when the backrests are set to a vertical angle (Cargo Position), luggage compartment capacity increases from 420 to 480 litres (14.7 to 16.8 cu ft).

Split at a ratio of 40/20/40, the rear backrest also offers many other options and variable loading configurations: Folding down only the centre section, for example, the driver and his passengers enjoy the benefits of a large through-loading able to accommodate two 46-inch golf bags, four pairs of skis or two snowboards. Folding down the rear-seat backrest completely, on the other hand, luggage capacity increases to an enormous 1,350 litres or 47.3 cubic feet.

A further amenity is the separate storage compartment beneath the floor of the luggage compartment as such. Folding down the centre rear-seat backrest alone provides a generous through-loading facility interacting perfectly with the transport bag available as an option. And last but certainly not least, a rear luggage rack preparation kit is also available in addition to the roof railing.

The engines: unparalleled efficiency and dynamics in their segment.
BMW X models offer a particular highlight in Sheer Driving Pleasure so typical of the brand. The BMW X1, in turn, combines this experience with a level of efficiency quite unparalleled in its segment. The BMW X1 sDrive20d and the BMW sDrive18d, for example, are the first vehicles of their kind to emit less than 140 grams of CO_2 per kilometre in the EU test cycle, and the other model variants also stand out through an unusually good balance of driving pleasure and fuel economy ensured by engines featuring the most efficient technology and, of course, by the wide range of BMW EfficientDynamics using breakthroughs in technology combined appropriately with one another on each model. Examples in this context are Brake Energy Regeneration, optimised aerodynamics, intelligent lightweight engineering, the final drive with optimised warm-up behaviour as well as ancillary units operating and controlled on demand such as the electrical fuel pump and the detachable a/c compressor.

The manual models come with Auto Start Stop and a gearshift point indicator.
The BMW xDrive all-wheel-drive system features a new power divider with optimised efficiency, and the engine of the BMW X1 xDrive28i also boasts a map-controlled oil pump. Last but definitely not least, all variants of the BMW X1 fulfil the EU5 emission standard.

The top performer in its segment is of course the BMW X1 xDrive28i with its straight-six gasoline engine delivering maximum output of 190 kW/258 hp at 6,600 rpm. Peak torque from this 3.0-litre, in turn, is 310 Newton-metres or 228 lb-ft maintained consistently between 2,600 and 3,000 rpm.

Featuring a composite magnesium/aluminium crankcase, fully variable VALVETRONIC valve control and infinite dual-VANOS camshaft adjustment, this power unit stands out through its low weight, the running smoothness and fast-revving performance characteristic of a BMW six-cylinder, as well as optimised performance at low engine speeds.

The BMW X1 xDrive28i accelerates from a standstill to 100 km/h in just 6.8 seconds and reaches a top speed of 205 km/h or 127 mph (230 km/h or 143 mph with optional high-speed set-up). The efficiency of the six-cylinder, together with a wide range of technologies reducing both fuel consumption and emissions, provides average fuel consumption in the EU test cycle of just 9.4 litres/100 kilometres (equal to 30.0 mpg imp) and a CO_2 rating of 219 grams per kilometre.

The four-cylinder diesel with BMW TwinPower Turbo and fourth-generation common-rail direct fuel injection in the BMW X1 xDrive23d combines truly impressive torque and pulling force with superior efficiency. Displacing 2.0 litres, this all-aluminium power unit develops maximum output of 150 kW/204 hp at an engine speed of 4,400 rpm and offers maximum torque of 400 Newton-metres/295 lb-ft between 2,000 and 2,250 rpm. Variable Twin Turbo technology activating a small turbocharger right from the start when just slightly “stroking” the gas pedal and a second, larger turbocharger cutting in under higher load, ensures truly fascinating response and a smooth surge of power whenever required. Piezo-injectors operating at a pressure of up to 2,000 bar make the injection of fuel particularly precise.

The BMW X1 xDrive23d accelerates to 100 km/h in 7.3 seconds and reaches a top speed of 205 km/h or 127 mph (223 km/h or 138 mph with its optional high-speed set-up). This sporting performance comes together perfectly with average fuel consumption in the EU test cycle of only 6.3 litres/ 100 kilometres (equal to 44.8 mpg imp) and a CO_2 emission rating of 167 grams per kilometre.

A turbocharger with variable intake geometry and common-rail fuel injection with piezo-injectors generating maximum pressure of 1,800 bar give the second four-cylinder diesel engine featured in the BMW X1 maximum output of 130 kW/177 hp at an engine speed of 4,000 rpm and peak torque of 350 Newton-metres/258 lb-ft maintained consistently between 1,750 and 3,000 rpm. Likewise displacing 2.0 litres, the all-aluminium diesel engine in the

BMW X1 xDrive20d ensures acceleration to 100 km/h in 8.4 seconds, with the BMW X1 sDrive20d reaching the same mark in an even faster 8.1 seconds. Top speed in each case is 205 km/h or 127 mph. On models featuring the optional high-speed set-up, top speed increases to 213 km/h or 132 mph on the BMW X1 xDrive20d and, respectively, 218 km/h or 135 mph on the BMW X1 sDrive20d.

Fuel economy and emission management are truly outstanding on both models: Average fuel consumption in the EU test cycle is 5.8 litres/100 kilometres (equal to 51.4 mpg imp) with the BMW X1 xDrive20d and an even more remarkable 5.3 litres/100 km (53.3 mpg imp) on the BMW X1 sDrive20d. The corresponding CO_2 ratings are 153 and, respectively, 139 grams per kilometre.

The 105 kW/143 hp version of the four-cylinder diesel in the BMW X1 xDrive18d and the BMW X1 sDrive18d offers an even more economical entry into the fascinating world of the BMW X models. Again, this power unit also comes with common-rail direct fuel injection and a turbocharger with variable intake geometry delivering peak torque of 320 Newton-metres or 236 lb-ft all the way from 1,750 to 2,500 rpm and reaching its maximum output at an engine speed of 4,000 rpm. The BMW X1 xDrive18d accelerates from a standstill to 100 km/h in 10.1 seconds, the BMW X1 sDrive18d completes the same exercise in 9.6 seconds. Top speed, in turn, is 195 and, respectively, 200 km/h (121 and, respectively, 124 mph).

The BMW X1 xDrive18d averages fuel consumption in the EU test cycle of 5.7 litres/100 kilometres (equal to 49.6 mpg imp) and has a CO_2 emission rating of 150 grams per kilometre. The BMW X1 sDrive18d, finally, marks the record in terms of emission management, with average fuel consumption of 5.2 litres/100 kilometres (equal to 54.3 mpg imp) and a CO_2 emission rating of just 136 grams per kilometre.

Both the BMW X1 xDrive28i and the BMW X1 xDrive23d come as standard with six-speed automatic transmission. This automatic power transmission also available as an option on the BMW X1 xDrive20d instead of the six-speed manual gearbox featured as standard not only promotes driving comfort, but also enhances the agile driving behaviour of the most compact X model.

The sporting characteristics of the transmission are attributable in particular to the direct connection with the engine closing the clutch immediately after setting off. The transmission therefore follows even the slightest movement of the gas pedal, with short reaction and gearshift times. Shifting back more than one gear, in turn, does not take any longer than a direct gearshift to the next

gear, thanks to the transmission directly moving into the right gear path. And last but certainly not least, the Steptronic function of the automatic transmission enables the driver to shift gears manually whenever he wishes.

BMW xDrive: intelligent all-wheel drive for the first time in the compact segment.
Offering variable distribution of drive power between the front and rear wheels, BMW xDrive permanent all-wheel drive improves both the car's agility and superior traction on rough surfaces. Thanks to the supreme qualities of this system, BMW is indeed the world's most successful manufacturer of all-wheel-drive vehicles in the premium segment. And now this intelligent all-wheel drive is available for the first time in a compact vehicle.

Working through a power divider with an electronically controlled multiple-plate clutch, xDrive distributes drive forces appropriately and in exactly the right dose to the axle offering the best wheel grip on the road below.

All-wheel drive is naturally connected to DSC Dynamic Stability Control and the engine management also on the BMW X1, with sensors on the wheels immediately detecting even the slightest tendency to spin. Within fractions of a second, therefore, the system is able to vary the ratio of power distribution even before a wheel starts to spin, thus effectively countering even the slightest tendency to over- or understeer in good time.

In bends more drive power is fed to the rear axle in order to make the vehicle even more agile and again to avoid understeer. Then, when leaving the bend, BMW xDrive immediately returns to the basic setting in the interest of optimum torque and drive power.

Even under the most demanding conditions, the distribution of drive power through xDrive always ensures optimum driving stability. Only when the appropriate change in drive force distribution is no longer sufficient will DSC Dynamic Stability Control cut in to regain driving stability by intervening on the individual wheel brakes and reducing engine power appropriately.

DSC Dynamic Stability Control in the BMW X1 comprises not only the ABS anti-lock brake function, Dynamic Brake Control and CBC Cornering Brake Control, but also DTC Dynamic Traction Control. This latter function raises the stability control thresholds to a higher level, making it easier for the driver to set off on snow and sand with the wheels allowed to spin slightly.

On the BMW X1 xDrive28i DSC comes additionally with Dry Braking in the wet, Fading Compensation and a Start-Off Assistant.
Available as an option in conjunction with the sports set-up likewise coming as an optional extra, Performance Control on the all-wheel-drive versions of the BMW X1 allows even more precise dosage of the brakes and maintains a superior balance of torque effectively countering even the slightest tendency to understeer right from the start on slippery surfaces and in particularly dynamic bends. As soon as the front wheels start to "push" out of a bend excessively, the inner rear wheel is slowed down as required by the combination of electronic xDrive and DSC control, any loss of drive power suffered in the process being set off by an increase in the flow of power going to the wheels.

Supreme agility and all-round safety ensured by modern suspension technology and the strong body structure.
Characterised by superior agility, precision and supremacy, the driving behaviour and performance of the BMW X1 results directly from its high standard of suspension technology as well as the particularly strong and stable body structure. At the front the all-wheel-drive models come with a double-joint spring-strut thrust bar axle, the BMW X1 sDrive20d and the BMW X1 sDrive18d featuring an aluminium double-joint tiebar axle. In conjunction with the five-arm rear axle featured on all models, this ensures an optimum balance of sporting performance and driving comfort at all times.

The hydraulic rack-and-pinion steering comes complete with ultra-precise power assistance. Speed-related Servotronic available as an option on all the all-wheel-drive models, in turn, allows an even higher standard of smooth and effortless handling.

The extra-powerful brakes on the BMW X1 ensure outstanding brake power and stopping forces under all conditions. Depending on the engine, the disc brakes on all four wheels come in various dimensions and, in accordance with the individual models, in swing-calliper or frame-calliper configuration at the front.

All versions of the BMW X1 come as standard on 17-inch wheels in either steel or aluminium. Another standard feature is the Tyre Defect Indicator, while runflat tyres enabling the driver to continue to the nearest workshop even after a complete loss of pressure come as an option.

The extremely stiff and torsionally rigid bodyshell of the BMW X1 is based on BMW's intelligent lightweight technology using, together with other materials, high-strength and ultra-high-strength steel wherever appropriate. Both the

choice of materials and the arrangement and geometry of the various support bars, load-bearing elements and reinforcements serve from the start to ensure maximum safety in a collision together with minimum weight and the highest possible standard of agility on the road. Forces acting on the bodyshell in the event of an accident are diverted through the engine supports and the suspension along several load paths in order to avoid extreme loads acting on individual structural elements and a possible impairment of the stable passenger cell.

Within the BMW X1 not only frontal and side airbags, but also curtain head airbags at the side offer superior safety on both the front and rear seats. At the same time the BMW X1 comes with three-point inertia-reel seat belts all round, featuring belt force limiters and belt latch tensioners at the front. ISOFIX child seat fastenings on the rear seats come as standard. All restraint systems are masterminded by a central electronic safety unit.

Daytime driving lights featured as standard,
bi-xenon headlights coming as an option.
Featured as standard on the BMW X1, the dual round headlights also come with a daytime lights function. Bi-xenon headlights including positioning and daytime driving lights featuring the corona rings so typical of BMW are available as an option combined with LED light conductors on the rear lights providing a particularly powerful impression of the L-design rear light clusters.

Apart from a High-Beam Assistant and a rain sensor, the BMW X1 is also available as an option with Adaptive Headlights illuminating the road ahead in the appropriate angle, following the steering and the position of the front wheels. Adaptive Brake Lights, in turn, give motorists following from behind a particularly clear warning when applying the brakes in an emergency.

Optional extras: functional, innovative, sophisticated.
The everyday driving qualities, driving pleasure and travel comfort offered by the BMW X1 may be further enhanced by sophisticated optional extras of the highest standard. The roof railing, a special storage package and a towing unit with a removable ball head offer additional transport capacities. Maximum trailer load of the BMW X1 is 2,000 kg or 4,410 lb (BMW X1 sDrive20d, BMW X1 xDrive 18d, and BMW X1 sDrive18d: 1,800 kg/3,969 lb).

Features such as sports seats, seat heating, automatic air conditioning, a lights package and the large Panorama glass roof offer optimum qualities for customising the interior and creating a unique, highly individual ambience. The audio system featured as standard, in turn, comes not only with six loudspeakers and a CD player, but also with an AUX-In port for connecting external sources of

music, with the option to integrate an MP3 player and other data media through a USB interface into the car's entertainment system. Supreme sound quality, finally, is provided by the harman/kardon Surround Sound System.

In conjunction with the Business and, respectively, Professional navigation system, the BMW X1 comes with the latest generation of BMW iDrive including a Controller and direct selection buttons on the centre console, favourite buttons beneath the radio control unit, and a Control Display measuring either 6.5 or 8.8 inches. This Display also presents images from the back-up camera available as an option and serving, in addition to the likewise optional Park Distance Control with its precise sensors, to facilitate parking and similar manoeuvres in the BMW X1.

Drivers of a BMW X1 equipped with a navigation system also have the option to use voice entry and a Bluetooth interface for mobile phones or for the enhanced connection of Smartphones with their music and communication functions. Yet another option is to use the wide range of BMW ConnectedDrive services comprising features such as BMW Assist, BMW Online, and unrestricted use of the internet in the car.

Unique driving experience, unparalleled efficiency.
The BMW X1 is the first premium vehicle of its kind in the compact segment. In a unique manner, the concept of the BMW X1 combines the many requirements made of a modern compact car in terms of superior function with the benefits of outstanding quality and the pleasure of an emotional driving experience.

Once again, therefore, BMW, through strong innovative power and a good feeling for all kinds of customer wishes, is taking on a leading role in the market. "Like every BMW X model, the BMW X1 again marks the breakthrough into a new, clearly defined market segment", states Dr. Klaus Draeger, Board Member Development of BMW AG. "Throughout the entire development process, our ultimate objective with the BMW X1 was to offer a unique driving experience in the compact class and unparalleled efficiency throughout the entire segment of BMW X models."

The BMW X1 is built at BMW Plant Leipzig where the new X model is produced on the same line as the three-door Sedan, the Coupé and the Convertible versions of the BMW 1 Series. This ultra-modern plant which also builds the BMW 3 Series Sedan stands out in particular through superior flexibility, innovative methods of quality assurance and environmentally friendly production technologies.

3.2 A New Class: The BMW 5 Series Gran Turismo.

Establishing an unprecedented, absolutely innovative car concept, BMW is setting fascinating new highlights in the upper midrange segment. As the world's first model in a brand-new segment, the BMW 5 Series Gran Turismo combines essential features of a prestige saloon, a modern Sports Activity Vehicle, and a classic Gran Turismo.

Stylish and elegant in design, this unique four-seater comes with a coupé-like, stretched and sleek roofline and a two-piece tailgate. The extra-large interior offers luxurious comfort, a slightly elevated seating position for comfortable and convenient access as well as superior all-round visibility covering all traffic conditions, and truly impressive variability.

As its name alone indicates, the BMW 5 Series Gran Turismo is ideally suited for a truly wonderful travel experience. The luxurious ambience immediately makes the driver and passengers feel at home, legroom at the rear is the same as in the BMW 7 Series, headroom is equal to that of the BMW X5. The tilt angle of the rear-seat backrests, in turn, adjusts individually to the respective, personal requirements of the passengers. And with the rear seats moving fore-and-aft up to 100 millimetres or almost 4", together with the backrests tilting forward completely if required, luggage capacity may be enlarged up to 1,700 litres or 59.5 cu ft.

Engines both powerful and efficient, Dynamic Drive Control featured as standard, the most advanced suspension technology, and innovative driver assistance systems, help to ensure a truly unique driving experience.

BMW EfficientDynamics entering a new segment.
The drivetrain technology featured on the new BMW 5 Series Gran Turismo likewise comes with a wide range of innovations, the benefits provided by BMW EfficentDynamics now introduced in yet another car segment providing a uniquely good balance of superior performance and supreme fuel economy.

A further highly significant point is the introduction of a new straight-six power unit in the BMW 535i Gran Turismo, for the first time combining turbocharger technology, High Precision Injection, and BMW's fully variable VALVETRONIC valve management. Displacing 3.0 litres, the BMW TwinPower Turbo delivers

225 kW/306 hp at an engine speed of 5,800 rpm, with an equally outstanding, spontaneous and direct response as well as peak torque kept consistently at 400 Newton-metres/295 lb-ft from 1,200–5,000 rpm.

The top-of-the-range power unit is the V8 TwinPower Turbo with High Precision Injection in the BMW 550i Gran Turismo, developing maximum output of 300 kW/407 hp between 5,500 and 6,400 rpm.

The BMW 530d Gran Turismo, to round off the range, offers particular highlights in terms of all-round economy. Its latest-generation 3.0-litre straight-six diesel comes with an all-aluminium crankcase as well as common-rail direct fuel injection with piezo-injectors, delivers 180 kW/245 hp at 4,000 rpm, and gives the car average fuel consumption in the combined EU cycle of just 6.5 litres/100 kilometres (equal to 43.5 mpg imp), as well as a CO_2 emission rating of just 173 grams per kilometre, both figures absolutely unique for a vehicle of this size and calibre.

All engines naturally fulfil the EU5 emission standard. In addition, all variants of the BMW 5 Series Gran Turismo come with an innovative eight-speed automatic transmission combining an extremely quick gearshift with maximum efficiency.

Through its wide range of qualities, the BMW 5 Series Gran Turismo meets all the demands of a modern target group looking for a vehicle providing perfect harmony in meeting all kinds of requirements and demands in life – both as a prestigious and elegant company car and as an active leisure-time vehicle.

Introducing this kind of concept, BMW is therefore once again proving the Company's ability to define brand-new vehicle segments in the market, with the new BMW 5 Series Gran Turismo making a powerful entry into the world of motoring as a completely new dimension. This new, unprecedented and unparalleled car adds a further facet to the world of Sheer Driving Pleasure, arousing new enthusiasm for the BMW brand also with additional target groups.

Design: versatile sportiness, stylish elegance.
In its exterior design, the BMW 5 Series Gran Turismo offers a unique combination of versatile sportiness and stylish elegance. Proportions typical of BMW, four doors with frameless windows and a coupé-like stretched roofline all come together in perfect harmony authentically reflecting the many qualities of the car.

The front view is characterised first and foremost by the strong presence of the low-slung BMW kidney grille, the large air intakes and the characteristic dual round headlights. The BMW kidney grille itself is slanted slightly to the front, its upper edge forming the foremost point on the body. The dual round headlights likewise slanted at an angle and extending far into the side panels merge at the top into a matt trim cover, thus generating the clearly focused look so typical of the BMW brand.

Characteristic: daytime driving lights and rear light clusters in LED technology.

Apart from the direction indicators, the corona rings on the headlights come for the first time with LED light units. In standard trim the light rings serve as the car's positioning lights, while in combination with optional xenon headlights their LED units may be operated in two stages: Dimmed to approximately 10 per cent of their full power, the LED light units serve as positioning lights. Operated at full power, on the other hand, they act as daytime driving lights in a particularly brilliant white again in that typical BMW look.

Boasting a roofline dropping slowly but consistently towards the rear of the car and merging into a spoiler at the back, the BMW 5 Series Gran Turismo successfully and very attractively conveys a feature typical of a coupé to a four-door car. The doors both front and rear come with frameless side windows.

A further feature immediately recognisable from the side is the waistline at the level of the door openers characteristic of BMW, extending from the outer edge of the headlights, rising slightly along the entire length of the car, and continuing all the way to the contours of the rear light clusters.

The two outer rooflines as well as the shoulder lines come together in the airflow spoiler on the tailgate, giving the fastback-like rear end an almost compact look. Otherwise, horizontal lines dominate the rear view of the car, with the look of power and muscle being further underlined by the wheel arches flared far to the outside.

The rear light clusters merge far into the side panels, ensuring that the full width of the BMW 5 Series Gran Turismo also comes out clearly in the car's night design. Rows of lights fed by LED light units provide a homogenous light pattern, again giving the BMW 5 Series Gran Turismo a distinctive look on the road and making sure that the car is always clearly recognisable.

The interior: generous space and comfort, individual luxury.
The unique feeling of space within the BMW 5 Series Gran Turismo is enhanced by the shape and design of the interior features, the interior colour scheme, and the choice of materials. The dashboard is subdivided horizontally and comes with a cockpit featuring Black Panel technology and a Control Display for BMW iDrive measuring up to 10.2" in size.

Apart from the electronic gear selector lever, the switches for Dynamic Drive Control as well as the iDrive Controller are arranged conveniently on the centre console.

Both the driver and front passenger benefit from their slightly elevated seating position, this so-called semi-command position allowing very comfortable and ergonomically ideal entry to the car and providing an optimised overview of traffic conditions in the area.

The impression of a self-contained space surrounding – or, even more appropriately, cocooning – the car's occupants is further enhanced by the harmonious shapes and colours of the panels on the front and rear doors. The interplay of ascending and descending lines and contours throughout the entire length of the interior creates a homogenous picture forming an optimum link connecting the front and rear seats.

As an alternative to the rear-seat bench for three passengers featured as standard, with individual adjustment of seat four-and-aft position as well as the backrest angle on all seats, the BMW 5 Series Gran Turismo is available as an option with two single seats at the rear, in which case fore-and-aft adjustment of the seat position as well as the backrest angle, the upper section of the backrest and the height of the headrest is all-electric. And as yet a further highlight, ambience illumination of the interior of the BMW 5 Series Gran Turismo featured as standard may be supplemented by additional light sources.

Even greater comfort when loading: two-piece tailgate and partition between the passenger and the luggage compartments.
The two-piece tailgate featured for the first time on a BMW ensures maximum comfort and variability when loading. The two sections offer the choice of a small opening beneath the rear window and a large lid like on BMW's X models.

Both sections may be opened and closed individually, with the large tailgate featuring Soft Close Automatic.

The unique partition between the passenger compartment and the luggage compartment ensures unrestricted comfort also while loading. Whenever, with the partition closed, the driver and passengers open only the lower section of the tailgate, the passenger compartment will not be affected in any way while loading by draughts or other effects of weather, or by any noise or acoustic annoyance.

As long as the rear seats and the partition are in their standard position, luggage compartment capacity is 440 litres or 15.4 cu ft. Moving the seats forward and unfastening the partition increases luggage capacity to 590 litres or 20.7 cu ft. And when folding down the rear-seat backrests as well as the partition, the driver and passengers benefit from no less than 1,700 litres or 59.5 cu ft.

New straight-six power unit: first-ever combination of turbocharging and VALVETRONIC.

The BMW 5 Series Gran Turismo is entering the market with a choice of two gasoline engines and one diesel power unit. A particular highlight in this context is the newly developed straight-six gasoline engine now making its debut and for the first time combining turbocharger technology, High Precision Injection, and variable VALVETRONIC valve management all in one. This unique combination gives the new BMW TwinPower Turbo an extremely spontaneous and direct response to the gas pedal, exceeding even the excellent response already offered by BMW's existing straight-six turbocharged engine.

This truly impressive response is the result of VALVETRONIC technology optimised once again as well as the turbocharger system applying the twin scroll principle to separate the ducts of three cylinders at a time both in the exhaust manifold and the turbocharger.

BMW's High Precision Injection has also been enhanced to an even higher standard of direct fuel injection technology. Now HPI features new injection nozzles precisely dosing the supply of fuel and operating at a pressure of up to 200 bar in the combustion chambers.

Displacing 3.0 litres, the new six-cylinder develops maximum output of 225 kW/306 hp at 5,800 rpm, with peak torque of 400 Newton-metres/295 lb-ft available all the way from 1,200–5,000 rpm.

Benefitting from this kind of power, the BMW 535i Gran Turismo accelerates from a standstill to 100 km/h in just 6.3 seconds. The car's top speed, in turn, is limited electronically to 250 km/h or 155 mph.

The exceptionally good balance of performance and fuel economy is clearly confirmed by average fuel consumption in the EU test cycle of just 8.9 litres/100 kilometres, equal to 31.7 mpg imp. And at the same time the CO_2 rating of the BMW 535i Gran Turismo is just 209 grams per kilometre.

Eight-cylinder with BMW TwinPower Turbo and High Precision Injection.
The top engine in the BMW 5 Series Gran Turismo is a unique V8 combining TwinPower Turbo technology with High Precision Injection. Displacing 4.4 litres, this outstanding power unit develops maximum output of 300 kW/407 hp in a speed range from 5,500–6,400 rpm. Peak torque, in turn, is 600 Newton-metres/442 lb-ft generated all the way from 1,750 to 4,500 rpm.

This unparalleled V8 is the most efficient engine of its type and, at the same time, the world's only gasoline engine with the turbocharger and catalytic converters arranged within the V-section between the two rows of cylinders.

The BMW 550i Gran Turismo accelerates from a standstill to 100 km/h in just 5.5 seconds, with top speed limited electronically to 250 km/h or 155 mph. Average fuel consumption of the BMW 550i Gran Turismo in the EU test cycle, in turn, is 11.2 litres/100 kilometres, equal to 25.2 mpg imp, while CO_2 emissions are 263 grams per kilometre.

Efficiency and pulling power: latest generation of diesel technology.
The straight-six diesel in the BMW 530d Gran Turismo clearly presents the latest state of the art in BMW engine development. Displacing 3.0 litres, this ultra-modern power unit comes with an all-aluminium crankcase, its turbo-charger system with variable intake geometry providing a highly dynamic but smooth flow of power tailored harmoniously to current driving conditions.

Fuel is supplied by the latest generation of common-rail fuel injection using piezo-injectors operating at a maximum pressure of 1,800 bar. In practice, this means engine output of 180 kW/245 hp at 4,000 rpm, with peak torque of 540 Newton-metres/398 lb ft from just 1,750 rpm.

The BMW 530d Gran Turismo accelerates to 100 km/h in just 6.9 seconds and reaches a top speed of 240 km/h or 149 mph. This sporting performance comes together with average fuel consumption of just 6.5 litres/100 kilo-metres (equal to 43.5 mpg imp) in the EU test cycle. And the CO_2 rating of the BMW 530d Gran Turismo, finally, is just 173 grams per kilometre.

Innovative, dynamic, efficient: eight-speed automatic transmission featured as standard.

All model variants come as standard with the eight-speed automatic transmission so far available only in the twelve-cylinder BMW 760i luxury performance saloon. This new transmission combines gearshift comfort, sportiness and efficiency of a standard never seen before, serving to an even greater extent to reduce fuel consumption and emissions to a level even lower than with BMW's six-speed automatic transmissions used so far.

The new eight-speed automatic transmission excels through its innovative gearset configuration providing additional gears and an even wider range of gear increments without any negative effect on the size, weight, and inner efficiency of the system.

All variants of the BMW 5 Series Gran Turismo come as standard with BMW EfficientDynamics, the various technologies offered varying from one model to the other according to its particular character. Among other features, Brake Energy Regeneration, on-demand control of the car's ancillary units such as the electrical coolant pump, the electrical steering assistance pump, the map-controlled oil pump and the detachable a/c compressor, as well as consistent lightweight technology, optimised aerodynamics including active management and control of the air flaps and, finally, tyres with minimum roll resistance ensure optimum fuel economy and emission management.

Cutting-edge suspension technology for even greater comfort, dynamism, and precision.

The modern suspension technology of the BMW 5 Series Gran Turismo serves to ensure a wonderful motoring experience, driving supremacy and outstanding safety at all times and under all conditions. One of the features that makes this possible is the combination of a double track control arm front axle and an Integral-V rear axle. In addition, the BMW 5 Series Gran Turismo comes as standard with air suspension on the rear axle, 18- and, respectively, 19-inch light-alloy wheels (the latter on the BMW 550i Gran Turismo), and a high-performance brake system.

DSC Dynamic Stability Control, finally, also comprises an electromechanical parking brake with its own Auto-Hold function.

As an alternative to hydraulic rack-and-pinion steering with Servotronic featured as standard, the BMW 5 Series Gran Turismo is available as an option with Integral Active Steering featured for the first time on the new BMW 7 Series.

As function of road speed, this unique steering influences steering forces by way of Servotronic and the steering angle by means of the Active Steering Transmission on the front axle.

Integral Active Steering also controls the steering angle on the rear wheels, thus giving the BMW 5 Series Gran Turismo even greater agility in city traffic and ensuring extremely smooth and superior lane change and handling in bends also at high speeds.

Optional for even greater dynamics and additional comfort: Adaptive Drive.
The BMW 5 Series Gran Turismo is available as an option with Adaptive Drive combining electronically controlled dampers and active anti-roll stabilisation. These highly innovative dampers adjust individually both to road conditions and the driver's style of motoring in order to prevent any undesired movement of the car.

BMW is the world's first car maker to use a damper system with the adjustment of the inbound and rebound strokes in a continuous, independent process. At the same time active anti-roll bars on the front and rear axle reduce body sway in bends to an absolute minimum, thus providing an even higher standard of comfort and agility.

Featured as standard: Dynamic Drive Control for individual set-up of the car according to current requirements.
The BMW 5 Series Gran Turismo comes as standard with Dynamic Drive Control for an individual set-up of the car in all its main features. This high-tech system influences the progressive curve on the gas pedal, engine response, the map control line for steering assistance, the gearshift dynamics on the eight-speed automatic transmission, and the response thresholds of DSC Dynamic Stability Control.

Dynamic Drive Control is activated by a button on the centre console directly next to the gear selector lever. Using this toggle function, the driver is able to choose among the NORMAL, SPORT, and SPORT+ modes. In combination with Adaptive Drive, the system also serves to control the damper curves by way of Dynamic Drive Control, in this case providing the additional COMFORT mode as a further option.

Innovative in design and construction: aluminium doors and panorama glass roof.

Apart from the engine compartment lid and the front spring struts on the body, the doors on the BMW 5 Series Gran Turismo are also made of aluminium. Serving as an outstanding design and construction feature, they reduce the overall weight of the car by 28 kg or 62 lb. And as a further highlight the BMW 5 Series Gran Turismo is the first large-scale production car from BMW to feature frameless windows in aluminium shell structure.

The panorama glass roof available as an option on the BMW 5 Series Gran Turismo provides an even brighter and, at the same time, more spacious ambience throughout the interior. Measuring 116 centimetres or 45.6" in length and 94.2 centimetres or 37.1" in width, the panorama glass roof provides an opening of up to 44 centimetres or 17.3". With the rear glass section bolted firmly to the body of the car, body stiffness is enhanced accordingly for even smoother driving conditions.

Optimum occupant safety on all seats.

Extra-strong load-bearing structures, generously dimensioned and exactly defined deformation zones, as well as highly efficient restraint systems master-minded by high-performance control electronics set the standard for the high level of passive safety the BMW 5 Series Gran Turismo has to offer. To optimise passive pedestrian safety, in turn, both the engine compartment lid and the side panels give way individually in the event of a collision.

Over and above frontal and hip/thorax airbags, the car's standard safety features include curtain head airbags at the side, three-point inertia-reel airbags with belt force limiters, ISOFIX child seat fastenings at the rear and, on the front seats, belt latch tensioners as well as crash-activated headrests.

The BMW 5 Series Gran Turismo is available as an option with bi-xenon headlights. The Adaptive Headlights likewise available as an option ensure appropriate illumination of the road ahead, following bends and winding roads in a flexible line.

The Bending Light function is integrated in the headlights, while a further feature of the Adaptive Headlights is variable light distribution for optimum illumination of the road ahead also when driving straight ahead.

BMW ConnectedDrive and the most advanced driver assistance systems.

A number of features coming either as standard or as an option on the BMW 5 Series Gran Turismo are exclusive developments offered only by BMW. The leadership in technology BMW has to offer comes out, inter alia, in the cockpit and climate control featuring Black Panel technology, the iDrive control system complete with direct selection buttons, the unique range of optional navigation and audio systems with a hard disc memory, the Head-Up Display as well as the exceptional choice of innovative driver assistance systems.

The options for exchanging information among the driver, his car and the surroundings provided by BMW ConnectedDrive are equally unique. And last but certainly not least, the range of mobility services providing traffic information, an emergency call function, vehicle, enquiry and office services, travel and leisure-time planning facilities as well as internet connections is again unparalleled the world over.

The driver assistance systems provided by BMW ConnectedDrive ensure maximum supremacy and safety on the road. These include the High-Beam Assistant, Lane Change Warning, Lane Departure Warning and Speed Limit Info. The new generation of BMW Night Vision able to detect individual persons in the BMW 5 Series Gran Turismo, in turn, sets new standards in avoiding accidents while driving at night.

The wide range of features offered as standard, regular equipment include cruise control complete with a brake function, while Active Cruise Control with Stop & Go comes as an option, maintaining a consistent distance from the vehicle ahead by intervening in drive management and building up brake pressure whenever required.

Keeping a close eye on everything: PDC Park Distance Control, Back-Up Camera, Side View and Top View.

The new BMW 5 Series Gran Turismo comes as standard with PDC Park Distance Control at the rear, with PDC available at the front as an optional extra. This is supplemented by a Back-Up Camera, with Side View and Top View also available as an option. Side View uses two cameras integrated in the front wheel arches enabling the driver to check out traffic coming from the side at an early point. Top View provides an even more detailed overview of road conditions with the help of two additional cameras integrated in the rear-view mirrors.

Data provided by the Side View cameras, by the Back-Up Camera and the PDC sensors on the vehicle and its surroundings is processed by a central computer generating an overall image presented in the Control Display and showing both the car and its surroundings from a bird's eye perspective.

Automatic air conditioning and personal entertainment for your individual well-being.

Featured as standard, automatic air conditioning in the BMW 5 Series Gran Turismo is controlled in all its settings by an array of buttons on the centre console. This allows the driver and front passenger to set the temperature, the amount and the distribution of air via the control unit on the climate control panel, individually for the right- and left-hand side of the car.

Four-zone automatic air conditioning standard in the BMW 550i Gran Turismo and coming as an option on the other model variants also allows individual adjustment of temperature, air volume and distribution at the rear left and right and comes complete with a separate control unit on the rear centre console.

Likewise featured as standard on the BMW 5 Series Gran Turismo, the audio system boasts both a CD player and an AUX-In port. A hard disc memory, in turn, makes the optional navigation system Professional particularly easy and convenient to use. With its capacity of 80 GB, the memory allows particularly fast access to the digital navigation maps and offers no less than 12 GB additional capacity for a large collection of music files.

Optional features include a six-DVD changer, a TV module, and a Digital Audio Broadcasting (DAB) receiver.

The entertainment systems available on the rear seats of the BMW 5 Series Gran Turismo with their 8 and, respectively, 9.2-inch screens integrated in the backrests of the front seats ensure particularly comfortable and pleasant motoring.

Hands-free communication thanks to full integration of mobile phones and Smartphones.

The optional mobile phone preparation kit complete with a Bluetooth interface allows additional safety and superior comfort in making telephone calls while driving. A snap-in adapter including a USB port comes as yet a further option for the full integration of Smartphones with an MP3 function. Using this option, the driver and passenger are able to use both the communication and entertainment functions of their mobile phone and mastermind all functions via iDrive.

To provide even greater transport capacity, the BMW 5 Series Gran Turismo is available with a towbar moving in and out fully automatically by means of a switch in the luggage compartment. So operating the towbar manually, with the risk of getting dirty in the process, is now a thing of the past. Maximum trailer load is 2,100 kg or 4,630 lb.

With its unique body concept, a truly luxurious interior ambience, superior drivetrain and suspension technology, and innovative equipment features, the BMW 5 Series Gran Turismo offers exactly the right standard of modern mobility in our modern times. It fulfils the demands and expectations of motorists looking for a generous driving experience, appreciating an exclusive ambience, and enjoying the benefits of a variable interior. In a nutshell, therefore, the BMW 5 Series Gran Turismo presents the status and elegant style of an upper midrange model in an individual rendition oriented to the user's personal requirements.

4. Greater Driving Pleasure, Greater Efficiency: BMW's Model Range from Autumn 2009.

4.1 New Diversity in the Luxury Class: New Models in the BMW 7 Series.

Following its successful introduction into the market, the new BMW 7 Series is further expanding its position in 2010 as the most innovative model series in the luxury segment. New drivetrain and equipment variants emphasise both the driving pleasure and the outstanding efficiency of BMW's top-class luxury saloon.

The BMW 740d to be introduced in autumn, for example, will for the first time feature a new straight-six diesel engine with BMW TwinPower Turbo Technology and maximum output of 225 kW/306 hp. The second diesel model in the range, the BMW 730d, underlines its status as the world's most economical and lowest emission model in the luxury class by a further reduction in both fuel consumption and CO_2 emissions as well as optionally available BMW BluePerformance Technology. Hence, BMW now offers yet another production model already fulfilling the EU6 emission standard today.

These innovations in the BMW 7 Series model range ensure truly thrilling diversity in the prestigious luxury segment. Including the new top-of-the-range BMW 760i and BMW 760Li with their twelve-cylinder power units, the BMW 7 Series is now available in three gasoline and two diesel variants.

BMW's intelligent xDrive all-wheel drive will also be introduced in the BMW 7 Series for the first time in the 2010 model year, yet another new feature entering the market in autumn 2009 being the M Sports Package available on all models in the BMW 7 Series.

World debut: six-cylinder diesel engine with BMW TwinPower Turbo Technology in the BMW 740d.
The new diesel model in the BMW 7 Series is characterised by spontaneous and supreme traction and pulling power combined with outstanding efficiency. The BMW 740d features a newly developed six-cylinder power unit, an all-aluminium engine boasting BMW TwinPower Turbo Technology and common-rail direct fuel injection with piezo-injectors operating at an injection pressure of up to 2,000 bar.

The charge system follows the Variable Twin Turbo principle and is made up of two turbochargers of various size perfectly matched to one another and therefore operating either individually or together as a team, depending on the driver's power and performance requirements. High-pressure fuel injection ensures particularly precise dosage of fuel optimising both the car's efficiency and the emissions coming from the engine.

The new power unit delivers maximum output of 225 kW/306 hp and peak torque of 600 Newton-metres/442 lb-ft maintained consistently between 1,500 and 2,500 rpm. This gives the BMW 740d a level of performance so far only provided by far larger power units, now combined with the superior economy typical of a BMW straight-six diesel.

The BMW 740d accelerates from a standstill to 100 km/h in 6.3 seconds and is limited electronically in its top speed to 250 km/h or 155 mph.

Average fuel consumption of 6.9 litres/100 kilometres in the EU test cycle (equal to 40.9 mpg imp) and a CO_2 emission rating of 181 grams per kilometre, finally, mark new records for efficiency in this performance class.

BMW BluePerformance making ongoing progress:
BMW 730d fulfils the EU6 emission standard.
The cutting-edge diesel engines in the current range allow BMW to introduce further models already fulfilling the future EU6 emission standard today. BMW is therefore consistently increasing its leadership in the introduction of exhaust emission management technology able to fulfil this strictest European standard planned for the future.

Following the BMW 330d already introduced in autumn 2008, the BMW 730d may also be equipped as an option with BMW BluePerformance Technology. On the BMW 730d with BMW BluePerformance the diesel particulates filter and the oxidation catalyst likewise featured as standard are supplemented by an NOx storage catalyst. As a result, exhaust management in this new 180 kW/245 hp six-cylinder diesel already reduces nitric oxides to the standard not coming into force until the introduction of EU6 in the year 2014.

The introduction of BMW BluePerformance Technology has no influence on the fuel consumption and CO_2 emissions of the BMW 730d, which are in-deed being further reduced once again in the 2010 model year. Modifications on the engine and the drivetrain reduce the average fuel consumption of the BMW 730d determined in the EU test cycle to 6.8 litres/100 kilometres (equal

to 41.5 mpg imp), with the CO_2 emission rating moving down to 178 grams per kilometre. As a result the BMW 730d is further expanding its leading position as the most efficient saloon in the luxury segment.

Like all other model variants, the BMW 730d owes its outstanding efficiency to superior engine technology as well as the powerful impact of BMW EfficientDynamics naturally featured as standard. Just how fuel-efficient a vehicle may be in the use of energy the driver of a BMW 7 Series will see in future not only on the fuel gauge, since the instrument cluster will be supplemented as of the 2010 model year by a recuperation indicator. A graphic display next to the current fuel consumption indicator in the lower half of the rev counter presents the generation of electric power in overrun and while applying the brakes, the blue arrow being activated as soon as Brake Energy Regeneration feeds energy into the on-board network without any fuel being consumed in the process.

BMW 750i xDrive and BMW 750Li xDrive: double debut for xDrive in the BMW 7 Series.
BMW already offers an intelligent all-wheel drive system in the BMW X models as well as the BMW 5 Series and the BMW 3 Series, promoting both driving dynamics as well as driving stability and traction. With its special features, BMW xDrive has indeed already made BMW the world's most successful manufacturer of all-wheel-drive cars in the premium segment. And now the range of cars with BMW xDrive is being enlarged once again.

Starting in the 2010 model year, BMW xDrive will be available for the first time also in the BMW 7 Series. In the BMW 750i xDrive and the BMW 750Li xDrive this permanent, electronically controlled all-wheel drive ensures appropriate distribution of the power of 300 kW/407 hp generated by the V8 with its BMW TwinPower Turbo Technology, thus catering for all demands in every situation.

Through a power divider with an electronically controlled multiple-plate clutch, xDrive feeds exactly the right amount of power in every situation to the axle which, through its wheels, has the best grip on the road. Precise and quick control of this power distribution gives BMW's all-wheel-drive luxury saloons truly supreme and outstandingly safe driving behaviour under all conditions.

Through its dynamic operation, xDrive also helps to give the new luxury performance models with this technology the neutral behaviour in bends and supreme tracking stability so typical of an all-wheel-drive BMW. In bends more drive power is fed to the rear axle in order to make the car even more nimble and avoid any understeer.

In the process the operation of xDrive is based on the steering angle pre-determined by the driver. While, when driving smoothly in a straight line, the front-to-rear power split is 40:60, up to 80 per cent of the drive power goes to the rear axle in a bend, ensuring spontaneous steering behaviour precisely following the actual radius and course of the bend. Then, when leaving the bend, the distribution of drive power returns to normal in the interest of maximum traction when accelerating again in a straight line.

With the BMW 750i xDrive and the BMW 750Li xDrive being fitted as standard with DynamicDrive electronic anti-roll stability control, the driver and passengers will enjoy the enhanced agility of these outstanding sedans in particular style and comfort.

M Sports Package featured for the first time in the BMW 7 Series.
The BMW 7 Series is characterised not only by its powerful design, supreme comfort and innovative features, but also by dynamic engines and superior suspension technology as well as fascinating, sporting performance. Indeed, no other sedan in the luxury segment offers such a dynamic driving experience of this calibre and quality.

Now this particular forte of the BMW 7 Series may be further accentuated for the first time by a M Sports Package setting further highlights both out-side and within the car for even greater Sheer Driving Pleasure and a truly unique look.

The M Sports Package sets striking highlights both outside and inside the car, enhancing Sheer Driving Pleasure to an even higher standard also expressed visually. It comprises an Aerodynamics Package as well as additional chrome trim on the specially designed front and rear aprons, illuminated M entry trim and BMW Individual High-Gloss Shadow Line.

In combination with the M Sports Package, the customer also has the choice of exclusive paintwork in Carbon Black Metallic, apart from six other body colours all available as an alternative.

The dynamic look of the car is rounded off by 19-inch M light-alloy wheels in double-spoke design featuring different-sized tyres front and rear. As an option there are also 20-inch M light-alloy wheels in double-spoke design, again with different tyre sizes front and rear.

And last but not least, electronically controlled BMW Dynamic Drive also comes in the M Sports Package for the BMW 7 Series.

Sports seats with leather upholstery, the M leather steering wheel with multi-function buttons and the M footrest underline the active character of this luxury performance saloon also within the passenger compartment. BMW Individual roof lining in anthracite and interior trim in fine-grain aluminium round off the interior ambience with its focus on sporting performance.

The BMW 760i and the BMW 760Li, finally, come with BMW Individual roof lining in alcantara anthracite as well as high-quality wood trim.

The M Sports Package is available for all models in the BMW 7 Series with both normal and extended wheelbase.

4.2 A new definition of maximum security: The New BMW 7 Series High Security.

With a new generation of high-security sedans based on the BMW 7 Series, BMW now meets the most stringent safety requirements for persons at risk while travelling in their vehicles. The BMW 760Li High Security and the BMW 750Li High Security are the first models in the world to be certified to BRV 2009 and both vehicles meet the requirements of the new ballistic protection level VR7. Due to their highly effective protective armour, the non-transparent body areas of both BMW 760Li High Security and the BMW 750Li High Security even meet the requirements of ballistic protection level VR9. The luxury sedans provide optimum safety in the individual mobility segment in combination with unparalleled comfort of travel, superior drive technology and an abundance of innovative equipment features that can make a significant contribution to confident motoring in all situations.

Reinforced vehicle-specific armour plating made from special steel and the newly developed safety glazing of the BMW 760Li High Security and the BMW 750Li High Security protect the passenger compartment in particular from attacks of all kinds. The high-security sedans meet the highest protection standards currently in effect. Besides the official certification, BMW deliberately subjected them to additional and particularly challenging test scenarios during their development. In addition to this, the drive and chassis technology was precisely adapted to handle the additional weight and specific centre of gravity of these special sedans. Hence, these models are ideally prepared to avoid hazards and to confidently master even extremely challenging situations.

Both in its scope and its level of quality, the sedans' security concept is unique in the world. It is based on findings which BMW gained as a result of its determined development work and on more than thirty years of experience in security vehicle engineering. The concept is tailored to the exacting security requirements of state representatives, heads of government, business leaders and VIPs.

Vehicle engineering and security concept from one source.
The security concept of the BMW 760Li High Security and the BMW 750Li High Security sedans was developed parallel to the production model and the integration of safety components is an integral part of the vehicle production process at the BMW plant in Dingolfing (Germany). In contrast to simply retrofitting armour plating, this approach ensures that the security components

are perfectly tailored to the corresponding vehicle. The security components are integrated into the body shell prior to painting. Integration at this early production stage allows particularly comprehensive and precise installation of the armour plating and ensures seamless protection of the passenger compartment, including door cut lines, body joints and transitions between glass and metal. Painting the body after the integration of the armour plating also ensures that the vehicle is thoroughly protected from corrosion. Specific chassis components are perfectly adapted to the additional weight of the sedans' armour plating. Hence, reinforced suspension, dampers and suspension strut top mountings are part of the model-specific component range. As a result, both the BMW 760Li High Security and the BMW 750Li High Security provide finely-tuned vehicle performance characteristics that cannot be achieved by retrofitted armour plating.

Innovative technology for outstandingly effective armour.
Certified for ballistic protection level VR7, both the BMW 760Li High Security and the BMW 750Li High Security set new standards for the protection of persons at risk while travelling in their vehicle. This technological advancement is the result of many years of experience combined with superior technological expertise. During the development of the high-security sedans, the basic vehicle and the security components were systematically improved and both were combined to create a finely-tuned overall concept. As a result, BMW has been developing vehicles that are clearly superior to previous models and competitors in every aspect.

Thanks to innovative production methods, the security components can be tailored even more precisely to the conditions of the corresponding basic vehicle. Reinforced vehicle-specific armour plating made from special steel as well as newly developed safety glazing protect the passenger compartment in particular from attacks of all kinds. The passenger compartment is protected by armour plating of the doors, the roof, the pillars, the front footwell and the separation wall between passenger and luggage compartments. The steel panels, which were manufactured exclusively for the high-security models of the BMW 7 Series by means of a special technique, fit the body contours perfectly. This way, the deployment of maximum-thickness armour plating has no detrimental effect on elbow- and legroom in the interior. Welding of the separate armour panels to the corresponding body components is carried out by specialists at the BMW plant in Dingolfing (Germany). The model-specific gap sealing ensures that critical areas such as door cut and body joint lines are safely sealed. The undercarriage of both high-security sedans is also armoured by special plating which was developed and tested with a particular focus on maximum explosion protection.

A new development is the high-security sedans'six-centimetre safety glazing. Due to its innovative structure, the multi-layer laminated glass cover provides a unique level of resistance. The window panes are covered with a polycarbonate laminate on the inside in order to prevent shattered glass particles from penetrating the interior.

Stricter than the standards: Complex testing methods guarantee comprehensive protection from gun and explosive attacks. The finely-tuned concept comprised of armour plating, gap sealing and safety glazing guarantees seamless protection of the passenger compartment from gun and explosive attacks. The level of safety provided by both the BMW 760Li High Security and the BMW 750Li High Security follows the BRV 2009 guideline, the most recent and strictest internationally recognized certification standard for high-security vehicles to date. In contrast to former guidelines, BRV 2009 takes into account the heightened danger from new weapons and explosives that may be used during criminal or terrorist attacks.

The successful completion of extensive tests is prerequisite to the certification to BRV 2009 and corresponding classification to the new VR7 ballistic protection level. As part of this process, the finished vehicles are subjected to ballistic and explosives tests which simulate attacks of all kinds. The tests and certification are carried out by the Staatliche Beschussamt München, an official Bavarian ballistics authority. The new BRV 2009 guideline sets higher standards for testing the firing angle and takes into account new versions of the tested ammunition. The BMW 760Li High Security and the BMW 750Li High Security are the first vehicles in the world to have passed these demanding firing tests. As part of the procedure, the vehicle's armour was tested for its resistance to attacks with hand grenades, which are known for their highly explosive effect and fragmentation. Both high-security sedans were also certified for their effective protection from these particular attacks.

Armour and special components guarantee mobility even in extreme situations.

The BMW 760Li High Security and the BMW 750Li High Security are perfectly prepared for retaining their mobility even after gun and explosive attacks. The optional leak-proof fuel tank is made from special material which compensates for scattered penetration holes made from ammunition or fragments and preventing fuel leaks. In addition to this, the BMW 760Li High Security and the BMW 750Li High Security are equipped with model-specific 20" alloy wheels and safety tyres with emergency running properties that allow passengers and driver to continue their journey even in the event of a complete loss of pressure. Thus equipped, driver and passengers are ideally prepared for escaping dangerous situations.

Even with the highly effective security equipment, both the exclusive character of the interior as well as the driving dynamics that are typical of BMW 7 Series luxury sedans has been virtually retained. No changes were made to the opening angle of the doors, which allows comfortable passenger access. The premium character of the standard comfort equipment and the available options ensure that high-security sedans provide the outstanding motoring and travel comfort that BMW customers have come to expect. The highly inconspicuous appearance of the integrated security package is an important contribution to maximum discretion: despite their extensive safety equipment, both the BMW 760Li High Security and the BMW 750Li High Security can hardly be distinguished from the corresponding production models.

Powerful drive system: Twelve- and eight-cylinder engines with BMW TwinPower Turbo.

The sedans' high protection level, which is second to none, is combined with a prestigious and stylish appearance, outstanding comfort of travel and an extraordinarily powerful drive system. The BMW 760Li High Security and the BMW 750Li High Security benefit from leading-edge engine technology. Both the BMW 760Li High Security's twelve-cylinder engine and the BMW 750Li High Security's V8 engine offer a combination of all-aluminium design, BMW TwinPower Turbo Technology and High Precision Injection with direct fuel injection. Both power units are distinguished by their energetic power delivery from a low number of revolutions, the running smoothness that is typical of BMW luxury sedans and their state-of-the art efficiency. Despite the increased weight of the vehicle, the engine performance characteristics of the new BMW 7 Series high-security sedans ensure that they can achieve a dynamic acceleration from standing and a powerful engine torque at all speeds. Both models have an electronically limited top speed of 210 km/h.

The brand new V12 unit of the BMW 760Li High Security unleashes its superior power of 400 kW/544 hp at an engine speed of 5,250 rpm. Peak torque of 750 Nm comes at 1,500 rpm. In combination with the newly developed eight-speed automatic transmission, the 6.0-litre twelve-cylinder engine impresses drivers not only with its outstanding running smoothness, but also with its ability to spontaneously translate its seemingly infinite power reserve into precisely adjustable driving dynamics anytime. The BMW 760Li High Security accelerates from zero to 100 km/h in as little as 6.2 seconds.

The 4.4-litre eight-cylinder engine of the BMW 750Li High Security is the first petrol engine of its kind with turbochargers that are located in the "V" space between the cylinder banks. The V8 engine achieves 300 kW/407 hp at engine speeds of between 5,500 and 6,400 rpm. It mobilizes a maximum torque of

600 Nm that is maintained between 1,750 and 4,500 rpm. The spontaneously delivered engine thrust is applied to the rear wheels via a six-speed automatic transmission. The BMW 750Li High Security accelerates from 0 to 100 km/h in 7.9 seconds.

Chassis and driver assistance systems: Comfort and driving safety on the highest level.

The superior chassis technology of the BMW 7 Series has been perfectly tuned to the specific properties of high-security sedans in terms of additional weight and specific centre of gravity. Hence, the BMW 760Li High Security as well as the BMW 750Li High Security are distinguished by particularly harmonious driving characteristics. Both the comfort and the active security features of both models correspond to the premium quality standards that are typical of the BMW 7 Series. The innovative and in part exclusive BMW driver assistance systems ensure that potentially dangerous traffic situations can be foreseen and avoided, thus allowing for confident motoring.

The combination of a double wishbone front axle with an integral V rear axle provides numerous benefits in terms of comfort and dynamics, but above all, it results in an outstandingly harmonious handling of curves, virtually eliminating rolling, swaying or tilting behaviour. Moreover, the BMW 760Li High Security and the BMW 750Li High Security are equipped with an electronically controlled Dynamic Damping Control. The dampers adapt to the road surface as well as to the style of motoring. The preferred setting of the dampers, the DSC (Dynamic Stability Control), the automatic gearshift dynamics, the accelerator and Servotronic steering characteristics can be selected via the Dynamic Driving Control button in the center console.

The high-performance braking system ensures excellent deceleration values in all situations. Inner-vented discs and sliding calliper design for optimum efficiency on all four wheels provide extreme stability and maximum braking comfort. Run-flat tyres are equipped with temperature sensors and a separate tyre pressure monitoring system for each wheel. Any deviations from the standard that are relevant for the safety of the passengers are registered at an early stage and the driver is informed by a warning signal displayed on the instrument cluster.

The optional lighting package that enhances the standard bi-xenon headlamps including BMW's High-Beam Assistant, Adaptive Headlights and Cornering Lights, Variable Light Distribution and Adaptive Vertical Beam Control set new standards in night-time driving safety. Also available as part of BMW ConnectedDrive are innovative driver assistance systems featuring Lane

Change Warning, Speed Limit Info, cruise control with a special brake function, BMW Night Vision, the night-time visibility system with pedestrian detection system, reversing camera and the System Side View.

The outstanding travel comfort provided by both high-security sedans is enhanced by comfort seats, the BMW Professional navigation system, four-zone automatic climate control, Park Distance Control and Soft-Close Automatic for front and rear doors as standard features. For personal enhancement, BMW offers virtually all options from the BMW 7 Series' wide range of equipment and accessories.

Special options for individual security requirements.
Just like the range of comfort options, the security package for both the BMW 760Li High Security and the BMW 750Li High Security can be adapted to suit individual requirements. An intercom system with concealed microphones and speakers allows safe communication with people outside of the vehicle without the need to open doors or windows.

Additional safety options include an assault alarm, fire extinguishing system with temperature sensor for extinguishing fires in the engine compartment and below the vehicle as well as irritant gas sensors for protecting passengers from gas attacks. If the interior protection system is triggered by excess gas levels, all windows are closed automatically, the central locking system is activated, the fresh air valves are closed and the ventilation system is shut off. An additional internal fresh-air supply system ensures that passengers are provided with breathable air.

If required, the high-security sedans can be enhanced with additional options. BMW also offers special options for authorities, governments and embassies. The package provides a range of special features such as flag holders, arrangements for radio installations right through to a gun case with compartments for two machine guns in the center console. Also included is an external beacon with a roof installation system and integrated LED flashlights for the front grille. Upon request, the vehicle may be fitted with an acoustic signalling system that can be controlled via the iDrive operating system.

In order to accommodate this exclusive circle of customers, BMW provides discreet consultancy and personalised sales and service support all over the world. BMW high-security sedans are serviced by certified special garages only. Access to the vehicles is restricted to very few selected and specially trained personnel. As part of its special customer service, BMW offers special driver training programs for security vehicles.

4.3 Superior Performance and Exclusive Style: The BMW M3 Edition Models and the BMW M6 Competition Limited Edition.

Muscular and powerful aesthetics, supreme performance and exclusive style – these are the unmistakable features of the BMW M3 now offered at a particular level of perfection in highly attractive Edition Models: Proceeding from the BMW M3 Coupé, BMW's engineers have created four highly individualised versions of the M3 Edition, all of them featuring a precise balance of modifications in body design and their interior as well as specially designed light-alloy rims and a lowered suspension.

The BMW M3 Edition Models are available worldwide in Alpine White, Black, Dakar Yellow, and Monte Carlo Blue in a production period strictly limited to just six months.

The BMW M6 Competition Limited Edition is likewise being presented for the first time at the 2009 Frankfurt Motor Show. Benefiting from appropriate modifications of the suspension, this outstanding high-performance coupé is even more dynamic than before, at the same time offering stylish exclusivity of the highest standard borne out by BMW Individual matt paintwork in Frozen Grey metallic and the customised interior.

The customer has the choice in this case of two colour worlds for BMW Individual Merino all-leather upholstery and benefits in particular from the fact that production of the BMW M6 Competition Limited Edition will be no more than 100 units.

BMW M3 Edition Models: individual highlights both outside and inside.
On the BMW M3 Editions Models the exterior paintwork and interior design are carefully matched to one another. Depending on the specific model, the body comes either in Alpine White non-metallic, Black non-metallic, Dakar Yellow non-metallic or Monte Carlo Blue metallic. The combination with BMW Individual High-Gloss Satin Chrome emphasises the sophisticated style and character of these very special cars.

The openings on the engine compartment lid and the BMW kidney grille are painted black in all cases, the side gill intakes and the dual tailpipes on the exhaust are finished in dark eloxy-plated chrome. The caps on the M exterior mirrors, finally, also come in Black and are connected to the A-pillars by a mirror base with dual bars finished in body colour.

Special colour effect also gives the interior of the BMW M3 Edition Models an individual touch. The surfaces on the centre armrest, the centre console and the armrests in the door linings come in White on the Alpine White and Black models, which also feature interior trim in carbon structure leather with white contrasting seams. The seats in black Novillo leather boast appropriate contrasting seams as well as vertical trim stripes in the upper section of the backrest and on the lower section of the legrest. On the Alpine White and Black models these elements come in White, on the Dakar Yellow and Monte Carlo Blue models they are finished in the appropriate exterior colour.

As a further feature the armrests and closing handles inside the doors are finished with yellow or, respectively, blue contrasting seams on the Dakar Yellow and Monte Carlo Blue models, while door cutout trim covers in Chequered Flag design proudly bearing the “M3” model designation are a regular feature on all edition models.

Customised wheel rims and lowered suspension.
To optimise their very special look, all four edition models come with customised light-alloy rims and a specially tuned suspension. The 19-inch forged M light-alloy rims in dual-spoke design are finished either in black or in the classic rim colour on all Edition Models. The Alpine White, Black and Monte Carlo Blue models, in turn, are also available with the same rims in a white contrasting colour and polished spokes.

The special suspension on the BMW M3 Edition Model highlights the sporting and dynamic style of the car, lowering the entire body by 10 millimetres or almost 0.4".

BMW M3: supreme performance with eight cylinders and seven gears.
Through their very special finish, the BMW M3 Edition Models give this high-performance athlete a particularly striking look clearly reflecting the outstanding dynamism and performance offered by the BMW M3 with its unique concept plus drivetrain and suspension technology inspired by motorsport.

Displacing 4.0 litres, the V8 high-speed power unit featured in the BMW M3 delivers maximum output of 309 kW/420 hp. Power is transmitted to the rear wheels either through the six-speed manual gearbox featured as standard or the optional M double-clutch gearbox with Drivelogic. This seven-speed M DKG Drivelogic transmission highlights both the dynamic performance and the efficiency of the BMW M3, allowing acceleration from a standstill to 100 km/h in 4.6 seconds (six-speed manual: 4.8 seconds) and providing average fuel consumption in the EU Test Cycle of 11.9 litres/100 kilometres, equal to 23.7 mpg imp (six-speed manual model: 12.4 litres/22.8 mpg imp).

The BMW M3 comes as standard with a Carbon lightweight roof, with Electronic Damper Control and the M Drive menu for configuring M-specific suspension and drive functions available as an option.

Supreme Performance, exclusive look:
the BMW M6 Competition Limited Edition.

The BMW M6 Competition Limited Edition combines the supreme dynamics of a high-performance sports car and the exclusive features of BMW Individual to form a truly fascinating symbiosis. Appropriate modifications of the suspension further enhance the profile of this unique Coupé designed from the start for maximum performance.

New set-up of the springs, dampers and anti-roll bars, together with the body lowered by 12 millimetres/0.47" at the front and 10 millimetres/0.39" at the rear, together with a new combination of wheels and tyres, optimise both lateral and longitudinal dynamics to a standard never seen before. The suspension control systems, the control unit masterminding the EDC Electronic Damper Control, wheel track and camber as well as the map controlling the variable M differential lock are all geared precisely to these special modifications of the suspension.

The colour concept featured both outside and within the interior highlights the unique character of this outstanding two-door in a most stylish manner, emphasising the motorsport technology and uncompromising premium quality of the car. BMW Individual matt paintwork in Frozen Grey metallic accentuates the powerful and, at the same time, exclusive presence of this unique Coupé.

The BMW M6 Competition Limited Edition is being built in a production run of just 100 units. The exclusivity of this very special model is further symbolised by a special placard on the roof lining bearing each car's serial number as a unique achievement in automotive technology.

The interior of the BMW M6 Competition Limited Edition is available in two colour variants. BMW Individual all-leather upholstery in Merino comes either in Black with light-grey contrasted seams or in twin-tone Silverstone/Black with light-grey and black seams forming a special contrast.

Merino leather comes on the seats, the headrests and side panels at the rear, the instrument panel, the trim cover on the driver's side, the glove box, the armrest, the handbrake lever gaiter, as well as the door and side panels. The door closing handles, in turn, are finished in black nappa leather.

On the twin-tone model the seat centre sections as well as parts of the door and side panels as well as the door closing handles come in black, all further elements are in Silverstone. On both versions footmats with a surrounding bend in Silverstone Merino leather as well as door cutout trim proudly bearing the “M6 Competition” model designation add the final touch to the exclusive ambience of the car.

4.4 The Epitome of Efficiency and Driving Pleasure: New Engine Variants and Attractive Edition Models in the BMW 1 Series.

Entering the 2010 model year, the BMW 1 Series as the guarantee for the broad-scale impact of BMW EfficientDynamics and as the epitome of Sheer Driving Pleasure in the compact segment is gaining even greater significance. Two additional, extra-economical low-emission engine variants are enhancing the model range of the BMW 1 Series Coupé as of September 2009: In the guise of the BMW 120i Coupé and the BMW 118d Coupé there will then be two further models with the EU5 emission rating.

Following the successful launch of the new entry-level three-door and five-door models, the BMW 116i and the BMW 116d, in spring 2009, the BMW 1 Series is once again proving its value as the pacemaker for efficient mobility combined with outstanding driving pleasure in the compact class. Other new models as of September 2009 are the Lifestyle and Sport Editions of the BMW 1 Series three- and five-door.

Still the only rear-wheel-drive model in the compact segment, the BMW 1 Series offers a unique blend of sporting driving pleasure and outstanding efficiency. Particularly the BMW 1 Series Coupé brings out this character so typical of the brand in truly convincing style, with two new entry-level versions of the two-door featuring a gasoline and a diesel engine coming into the market in September 2009: The new BMW 120i Coupé is powered by a 2.0-litre four-cylinder with BMW High Precision Injection (direct gasoline injection) developing 125 kW/170 hp at 6, 700 rpm and peak torque of 210 Newton- metres/155 lb-ft at 4, 250 rpm, accelerating the BMW 120i Coupé from zero to 100 km/h in 7.8 seconds and offering a top speed of 224 km/h or 149 mph. Average fuel consumption in the EU test cycle is 6.6 litres/ 100 kilometres, the CO_2 emission rating is 153 grams per kilometre.

An award-winning four-cylinder diesel makes the new BMW 118d Coupé the most efficient car of its kind, the diesel engine with its aluminium crankcase, turbocharging and common-rail fuel injection helping the three-door BMW 118d win the World Green Car of the Year 2008 Award. Displacing 2.0 litres, this high-tech power unit develops 105 kW/143 hp at 4, 000 rpm and delivers maximum torque of 300 Newton-metres/221 lb-ft between 1, 750 and 2, 500 rpm.

This outstanding power unit offers an unbeatable combination of performance and fuel economy also in the Coupé, the BMW 118d Coupé accelerating from a standstill to 100 km/h in 9.0 seconds and reaching a top speed of 210 km/h

or 130 mph. Offering average fuel consumption according to the EU standard of 4.5 litres/100 kilometres (equal to 62.8 mpg imp) and a CO_2 emission rating of 119 grams per kilometre, this compact athlete clearly proves its outstanding talent in terms of both all-round economy and clean emissions.

The BMW 1 Series – the pacemaker in reducing fuel consumption and CO_2 emissions.

Both new variants of the BMW 1 Series Coupé come as standard with a wide range of BMW EfficientDynamics technologies such as Brake Energy Regeneration, an Auto Start Stop function, a gearshift point indicator and ancillary units with on-demand management and control. Both the BMW 120i Coupé and the BMW 118d Coupé naturally fulfil the EU5 emission standard, meaning that the BMW 1 Series alone now comes with 21 models complying with this requirement. A further important point is that five models in the BMW 1 Series already offer a CO_2 emission rating of less than 120 grams per kilometre, with the BMW 116d standing out as the absolute

leader in terms of fuel economy and emission management. The four-cylinder diesel engine featured in this particular version of the BMW 1 Series delivers maximum torque of 260 Newton-metres or 192 lb-ft and, in combination with BMW EfficientDynamics also featured as standard in this model, allows average fuel consumption in the EU test cycle of just 4.4 litres/100 kilo- metres (equal to 64.2 mpg imp) and a CO_2 rating of 118 grams per kilometre.

The technologies developed by BMW – and naturally featured at no extra cost – to reduce both fuel consumption and emissions play a particularly significant role in the successful BMW 1 Series. Indeed, this makes BMW an important role model for the entire automotive industry, with BMW still selling more cars with high-efficiency technology each month than other car makers in the course of a whole year. At the same time the consistent expansion of the BMW 1 Series by the addition of particularly economical model variants including the new BMW 116i delivering maximum output of 90 kW/122 hp and peak torque increased to 185 Newton-metres or 136 lb-ft makes a significant contribution to the success achieved by BMW in recent times in reducing average fleet fuel consumption. Between 2006 and 2008 alone, the average fuel consumption of BMW's models in the German market was reduced by no less than 16 per cent, BMW therefore exceeding the rate of reduction of the next-best competitor in the premium segment more than twice.

Exclusive and full of character: the BMW 1 Series Lifestyle and Sport Editions.

Apart from outstanding efficiency and the Sheer Driving Pleasure so typical of the brand, innovative features and uncompromising premium quality help to give the BMW 1 Series a truly prominent position in its segment – and now the new Lifestyle und Sport Edition Models add further class and style to these characteristic features. The Edition Models excel in particular through particularly attractive, high-quality and carefully matched features and equipment, and are available on all engine variants of the three-door and five-door.

The Lifestyle Edition exudes stylish extravagance both on the exterior and in the interior of the BMW 1er, highlighted by body paintwork in exclusive Marrakesh Brown Metallic including additional components in body colour and chrome-plated tailpipes as well as exclusive light-alloy rims in five-spoke design. All models come with 17-inch wheels.

On the five-door the exterior is rounded off by the car's special finish on the window shaft covers and side window surrounds in Shadow Line, on the three-door in Chrome Line. Chrome entry trim proudly bearing the name "BMW Edition", a leather sports steering wheel with multifunction buttons, and roof lining in anthracite colour provide a particular touch of modern elegance within the interior.

The exclusivity of the Lifestyle Edition is highlighted to an even higher level of perfection by the interior colour scheme matched to the colour of the paintwork. Features include interior trim in high-gloss Marrakesh Brown as well as door panels and seat upholstery in Magma Brown. And as an alternative to Network cloth upholstery there is also the choice of Pearlpoint upholstery with Magma Brown cloth / leather.

The exterior and interior features are also carefully matched to one another on the Sport Edition Model, giving the BMW 1 Series particularly dynamic and powerful character. The Edition Models come as standard with the M Sports Package including the M Aerodynamics Package, a sports suspension set-up as well as 17-inch light-alloy wheels in dual-spoke design. The BMW 130i and BMW 123d feature 18-inch light-alloy wheels in Ferric Grey paintwork available as an option also on the other model variants. Exclusive Blackline rear lights, exterior features in body colour, Shadow Line on the window shaft covers and side window surrounds, foglamps and chrome-plated tailpipes on the exhaust round off the striking look of the exterior.

The sporting and exclusive flair of the interior is highlighted by chrome-plated entry trim bearing the name “BMW Edition”, stainless-steel pedals, an M footrest, an M sports steering wheel, an M gearshift lever complete with its gaiter made of soft nappa leather, interior trim in Aluminium Glacier Silver and roof lining in anthracite colour. As yet a further highlight the BMW 1 Series Sport Edition comes with sports seats for the driver and front passenger in a combination of cloth and Sensatec featuring blue ornamental stitching around the seat bottoms and headrests. And to provide the final touch the footmats are adorned by blue piping.

Navigations system Business in the BMW 1 Series now featuring an integrated storage of navigation data and optimised display technology.
In conjunction with one of the navigation systems available as an option the BMW 1 Series proudly boasts the new generation of BMW iDrive electronic vehicle management. Entering the 2010 model year, the BMW 1 Series furthermore comes as an option with a new version of the Business navigation system, its new control concept allowing even easier and more precise control through iDrive featuring direct choice and favourite buttons.

The new Control Display with 800 x 480 pixel image resolution ensures detailed presentation of maps in two dimensions or in a perspective view, complete with integrated arrow graphics. Storage of navigation data installed within the car serves to provide even faster access to the system. And last but not least, the audio unit included within the new control system comes complete with a CD player.

5. Original BMW Accessories: Innovations for Even Greater Dynamism, Safety and Comfort.

5.1 Top Performance from the Source: BMW Performance Power Kits for the BMW 320d Saloon and the BMW 135i Coupé.

With the BMW Performance product line being consistently enlarged and enhanced, an increasing number of customers now have the opportunity to further upgrade the driving experience in their BMW, expressing their very own sporting and individual style.

Retrofittable options on the suspension, drivetrain, aerodynamics and cockpit developed specifically for the BMW 3 Series and the BMW 1 Series highlight the dynamic character of the respective model.

At the 2009 Frankfurt Motor Show BMW will for the first time be presenting a Performance Power Kit for four-cylinder diesel models. Like the BMW Performance Kit for the most powerful straight-six petrol models in the BMW 3 Series and the BMW 1 Series, this Power Kit increases engine output by 15 kW/20 hp.

Both versions of the BMW Performance Power Kit will be presented at the Frankfurt Motor Show in the BMW 135i Coupé and the BMW 320d Saloon.

Following the successful market launch of the BMW Performance Power Kits for the BMW 135i Coupé and the BMW 320d Convertible as well as the Saloon, Touring, Coupé and Convertible versions of the BMW 335i, a Power Kit is now also available for the volume models in the BMW 1 and the BMW 3 Series powered by the 130kW/177 hp four-cylinder diesel.

This retrofittable option is also part of the Original Accessories range, with all BMW Performance products being developed specifically for the respective model, reflecting the style typical of the brand in their technology and design, and fulfilling BMW's exceptional standards in terms of quality and safety in every respect. As a result, they are also covered by BMW's warranty terms and conditions and are fitted/sold by BMW Dealers and Service Partners as well as BMW Retail Outlets.

Consistent enhancement: BMW Performance Kit for the four-cylinder diesel models.

Like the Performance Kit developed for the six-cylinder petrol engines with BMW Twin Turbo technology, the BMW Performance Power Kit for the diesel models is made up of software and hardware components perfectly matched to one another in their functions. They have been developed specifically for the 2.0-litre four-cylinder diesel with its all-aluminium crankcase, common-rail fuel injection, and turbocharger. Appropriate modifications in engine management have a positive effect on the development of power, a larger intercooler and a particularly powerful fan for the main radiator adjusting the upgraded engine to the change in thermal conditions.

Maximum output of the four-cylinder diesel is increased by the Performance Kit from 130 kW/177 hp to 145 kW/197 hp, with peak torque maintained consistently between 1,750 and 3,000 rpm increasing from 350 to 390 Newton-metres (258 - 287 lb-ft).

The most important result of this increase in power is the significantly optimised acceleration and flexibility of all models coming out very clearly for the driver. The new BMW Performance Power Kit for diesel models is available not just for the BMW 320d Saloon, but also for the corresponding Touring, Coupé and Convertible models. Within the BMW 1 Series, in turn, both the three-door and five-door BMW 120d as well as the BMW 120d Coupé and the BMW 120d Convertible may be equipped with this power-enhancing retrofittable option.

Entering new dimensions of power and performance: the BMW Performance Power Kit for the straight-six with BMW Twin Turbo technology.

The BMW Performance Power Kit available for the top models in the BMW 3 Series and the BMW 1 Series is tailored precisely to the technology and characteristics of the most powerful straight-six within BMW's engine portfolio. This 3.0-litre power unit comes complete with an aluminium crankcase, Twin Turbo charger technology, and High Precision direct gasoline injection. In standard configuration maximum output in the BMW 3 Series and the BMW 1 Series is 225 kW/306 hp, peak torque is 400 Newton-metres/295 lb-ft.

The BMW Performance Power Kit increases engine output to 240 kW/326 hp and raises peak torque to 430 Newton-metres/317 lb-ft on manual models and, respectively, 450 Newton-metres/332 lb-ft on models with automatic transmission.

On the BMW 335i Coupé and the BMW 335i Convertible, the BMW Performance Power Kit may also be combined with seven-speed sports automatic featuring double-clutch technology.

The driver in all cases will enjoy a significant increase in performance clearly confirmed by objective measurements. As an example, the BMW 335i with the BMW Performance Power Kit accelerates from a standstill to 100 km/h in 5.4 seconds, 0.2 seconds faster than the same car in standard trim. Acceleration from 80-120 km/h (50-75 mph), in turn, is even 0.5 seconds faster than in the regular production model.

Sporting message, individual style: the BMW Performance range.
Apart from extra engine power, BMW Performance also offers a wide range of other opportunities to further enhance the performance-minded character of the BMW 3 Series or the BMW 1 Series. As an example, the BMW Performance Aerodynamics Kit serves to optimise the car's driving dynamics and give the car a truly powerful look in everyday traffic. Moving on to the suspension, BMW Performance Sports Brakes, the BMW Performance Suspension, a BMW Performance Spring Strut Crossbar made of carbon-fibre, as well as light-alloy wheels in two attractive design options will satisfy even the most discerning customer.

Interior ambience absolutely equal to a thoroughbred sports car is ensured, inter alia, by BMW Performance sports seats in motorsport bucket design, the BMW Performance gearshift lever, and the BMW Performance multi-function sports steering wheel complete with an LED display presenting various specifications such as the oil and coolant temperature, lateral and longitudinal acceleration, as well as the gearshift point and the time through a clock function.

All BMW Performance components are available individually, giving the BMW driver the option to set particularly sporting highlights in areas of particular relevance through the appropriate retrofitted options. And given their consistent looks and philosophy, all BMW Performance products combine a truly thrilling and sporting driving experience to form a complete and harmoniously balanced overall package.

5.2 Safe, Convenient, Versatile: BMW's New Rear Rack Systems.

Offering a wide range of baggage and transport products, the Original BMW Accessories portfolio meets all kinds of requirements and demands for an active lifestyle. An innovative rear-end transport system now enables the drivers of BMWs not equipped with a towbar to take along bicycles, skis and snowboards safely and conveniently. Conceived for a wide range of current and future BMW models, this transport system is made up of individual connections and fastenings tailored to each model and fitted out of sight at the rear, an electrical equipment package, a base module serving as the platform for transport racks, and an appropriate support for two bicycles including winter-sport equipment.

The new rear-end transport system is being introduced into the market parallel to the new BMW Z4. Specific variants for the BMW 5 Series Gran Turismo, the BMW 1 Series, BMW 3 Series and BMW 5 Series will follow in the course of time. Like all offers in the Original BMW Accessories range, the new rear support reflects the style and character so typical of the brand in its technical features and design, completely fulfilling all of BMW's most demanding standards in terms of quality and safety and therefore fully covered by the usual BMW warranty.

Fitted within a few minutes, folding down with infinite adjustment.
The rear rack and the connection fixtures are sold and fitted by BMW Dealers and Service Partners as well as BMW Retail Outlets. The base module and the respective transport rack may be fitted by the customer himself within a matter of minutes.

Made of aluminium, the base module and the transport set weigh just 6 and, respectively, 14 kg. The bicycle racks are adjustable in width, serving to safely take up bicycles of all sizes. And after being disassembled, the rack may be folded up easily and conveniently with minimum dimensions.

The rear rack system comes with lockable fastenings and LED illumination. This guarantees comfortable use of the rack when travelling, with the loaded transport unit folding down with infinite adjustment for convenient access to the luggage compartment at all times. A further point is that on the BMW Z4 the retractable hardtop opens and closes the same way as usual even with the rear transport rack fitted in position and fully laden.

5.3 Reaching Your Destination in Style: New Portable Navigation Systems.

The portable navigation system in the Original BMW Accessories range now also available for the BMW 3 Series and the BMW 1 Series and for retrofitting on the BMW X3 offers a significant enhancement of both comfort and safety. These systems guarantee safe and reliable guidance also in cars not fitted with a firmly installed navigation unit, the BMW Navigation Portable Plus and BMW Navigation Portable Pro fitting ideally in the cockpit.

With the cables kept fully out of sight and the support tailored to each model and tested for safety, these navigation systems offer the very best in design and technology reflecting the high standards of the brand as optimum solutions. BMW Navigation Portable Plus and BMW Navigation Portable Pro combine the opportunity to take along the navigation unit not only with the benefits of full integration into the car, but also with the highly attractive design of the system including the name “BMW” on the housing.

BMW shows you where to go, TMC provides traffic congestion warnings.
In terms of both hardware and software, the BMW Navigation Portable Plus and the BMW Navigation Portable Pro offer the most advanced navigation technology. Both systems come as an option with either two- or three-dimensional map presentation and voice messages. They are operated by a 4.3-inch high-resolution touchscreen, taking the latest information from the TMC Traffic Message Channel into account in guiding the driver to his destination.

A graphic presentation of a BMW acts as the symbol for showing the driver his current location, BMW Navigation Portable Pro offering the additional option to enter your destination by voice control activated by a remote control unit on the steering wheel.

Both navigation units also come with Bluetooth hands-free use of a mobile phone through integrated loudspeakers and a microphone, an MP3 and an audio book player, a video function, a pocket calculator and, as an option, a digital travel guide.

Data may be fed into both systems via an SD card slot and a USB jack. The BMW Navigation Portable Pro comes with pre-installed maps covering no less than 33 European countries, enabling the customer to individually select the maps he needs then downloaded into the navigation unit via an SD card.

Last but not least, both systems enable the user to save the routes they have covered and subsequently re-visit their routes on a PC through Google Earth.

Safely installed but ready for use wherever you go.
The mobile navigation unit is fitted directly above the air vent on the centre console of the BMW 3 Series and the BMW 1 Series. In the BMW X3 it is fitted in the storage box on the upper section of the dashboard, that is in the same position as the Control Display on a permanently installed navigation unit.

The navigation units are connected to the on-board network, their batteries are charged while driving, and they may be used outside the car for up to six hours.

In the BMW 3 Series and the BMW 1 Series both the BMW Navigation Portable Plus and the BMW Navigation Portable Pro may provide destination guidance messages through the car's loudspeakers.

These two new mobile navigation systems offer attractive opportunities to use the benefits of digital route guidance as a retrofittable option. Fitted safely in position without the usual suction or stick-on caps and loose cables, both units offer a significant advantage over comparable systems from other manufacturers. As a result, both systems need the great demands made by the BMW customer of his or her car in terms of function, technology and design, and offer the highest standard of optional equipment and accessories.

5.4 Perfect Care, Lasting Beauty: Natural Care – the New Range of Original BMW Care Products.

Preserving values and maintaining sheer driving pleasure for a long time – precisely these are the objectives of the care products in the wide range of Original BMW Accessories.

Now the BMW Natural Care product line enhances this demand by consistently and reliably applying the benefits of sustainable value in terms of human, social and product-related preservation. BMW Natural Care is the world's first series of cleaning and care products for the automobile to do completely without any materials or ingredients possibly harmful to the human being or potentially causing an allergy, using materials gained through the strict application of ethical and ecological principles and meeting the highest standards in the preservation of resources also in the production process.

For the first time, therefore, these products combine excellent cleaning and care properties with particularly great awareness of sustainable values. The wide range of products from BMW Natural Care comprises glass cleaners, concentrated window cleaners, car wax, car shampoo, polish and interior cleaners.

The cleaning and care products in the BMW Natural Care line are based to the largest possible extent on natural, re-growing materials. The glass cleaner, interior cleaner and car shampoo, for example, are made exclusively of completely degradable sugar surfactants gained from starch and vegetable oil. Only the concentrated window cleaner comes with a mixture of vegetable and mineral-based surfactants for reasons of cleaning quality and safety.

The car wax and polish, in turn, contain a carnauba wax emulsion, a substance gained from the leaves of the carnauba palm and acknowledged as the hardest wax of natural origin.

Appropriate selection of a natural materials therefore ensures particularly intense care and protection, with a socio-ecological factor also being taken into account in developing BMW Natural Care products by using only natural materials the cultivation of which does not replace the growth of food products.

All products from BMW Natural Care are dermatologically tested and acknowledged as harmless. A bitter substance is added to the water-based cleaner in the interest of child safety.

BMW Natural Care products are made at room temperature using minimum energy. And with most materials being supplied by German manufacturers, the cost of transport and the emissions involved are reduced to a minimum.

Sustainability as a decisive factor in BMW's corporate policy.
Introducing the BMW Natural Care product line, the BMW Group is adding yet a further aspect to the philosophy of sustainable management already applied consistently by BMW. Indeed, the assumption of social and ecological responsibility has been a decisive factor in the policy of the Company for many years, borne out both in the development of new models, in production methods helping to save energy and resources, and in taking appropriate measures for comprehensive recycling of the materials used.

Proceeding from the BMW EfficientDynamics development strategy, BMW has created a model range offering an unparalleled balance of fuel economy and superior performance in all vehicle segments. From 2006 to 2008 alone, the average fuel consumption and CO_2 emissions of BMW brand cars have dropped by 16 per cent, BMW therefore showing twice the performance in terms of reduction efficiency as the second best competitor in the BMW segment.

With BMW EfficientDynamics acting as the crucial factor in development, with production sparing resources to the greatest possible extent, and with high social standards offered to employees at all locations of the BMW Group, the BMW Group has strengthened its outstanding position once again in the latest Dow Jones Sustainability Index, being chosen for the fourth time in a row as the "World's Most Sustainable Car Maker".

6. Perfect Networking for Even Greater Convenience, Infotainment and Safety: Innovations from BMW ConnectedDrive.

BMW ConnectedDrive comprises all the innovative offers and technologies made by BMW to network the occupants, the car, and the world around them in a unique portfolio of innovations offering enhanced driving comfort, superior infotainment and safety and, as a result, Sheer Driving Pleasure of the highest standard.

Some of these features are the camera-based Speed Limit Info, Traffic Sign Detection System, a telephone enquiry service transmitting data directly into the navigation system, the option to download picturesque and individual routes by way of BMW Routes, as well as the Enhanced Emergency Call function serving to exactly pinpoint the current location of the car and guide rescue services quickly to the scene of an accident.

One of the particular qualities of BMW ConnectedDrive is its ability to give the driver convenient access to appropriately prepared information for an even more intense driving experience. Precisely this is why the comfort, infotainment and safety systems on board a BMW provide the occupants at all times with as many different services as required and desired, leaving the job of choosing the right service and taking appropriate action to the driver. The driver, therefore, is the responsible focal point of all activities, the innovations offered by BMW ConnectedDrive giving him even greater competence, supremacy and safety under all kinds of driving conditions.

Sought and found: the telephone enquiry service.
BMW ConnectedDrive is a dynamic concept in every respect offering growing mobility and information back-up through the ongoing development of services.

One example in this context is the telephone enquiry service not only providing a direct connection to the complete telephone directory and yellow pages, but also allowing the operator at the BMW Headquarters to transmit information on approximately 200,000 points of interest from the Green Michelin Guide or the Merian Directory straight into the car.

The user is also able to check out the latest flight information and search specifically for pharmacies open all night or on weekends, ATMs as well as, say, golf courses. Yet a further option is to book hotels through the HRS Booking Service at particularly favourable terms and conditions versus the regular online booking process.

As soon as an occupant selects the Inquiry Service on the Menu, he is connected with the BMW Headquarters, the car at the same time transmitting its current position. The particular benefit of this service is that addresses found by the BMW Headquarters may be transmitted straight into the car, contact and the transmission of the car's current location as well as addresses found being established and repeated free-of-charge as often as required as part of BMW ConnectedDrive.

To download all data received conveniently into the navigation system, all the driver has to do is touch a button. And making phone calls is just as easy, the driver simply clicking the number transmitted to the car by the BMW Headquarters in order to make a call directly to the person he wishes to contact with his own telephone.

Infotainment of the future from BMW ConnectedDrive: the BMW Application Store Concept.
The BMW Application Store Concept is yet a further innovative highlight of BMW ConnectedDrive committed to virtually unlimited customisation of the car: Consistently continuing the process of automotive network, BMW is becoming the first car maker in the world to offer the opportunity to download individual applications and software updates at any time while on the road, without even contacting a BMW dealer in the process. This serves to keep the car up-to-date throughout its entire lifecycle, and, in particular, to customise the car consistently according to the wishes and preferences of the individual occupants.

As a result, the customer benefits from the technical innovations offered by the BMW Group in an ongoing, uninterrupted process even after buying his vehicle. And he also has the opportunity to install individual applications at a later point in time, benefiting from online networks or specific applications such as Efficiency Driver Training or even playing a car registration guessing game in the car itself.

Just in case: the Enhanced Emergency Call function.
Quick and direct assistance – this is what counts in a traffic accident. So introducing the Enhanced Emergency Call function in the context of BMW ConnectedDrive, BMW has become the first car maker in the world

ensuring that rescue services are not only informed in detail on the type of a collision even before arriving at the scene of an accident, but also have ample information on the risk of injury affecting the occupants.

Using this information, the rescue services are able to prepare appropriate medical treatment of the victims in good time, the data transmitted to the BMW Headquarters not only specifying the exact location of the car down to the last metre, but also the chassis number, the type of vehicle, its colour, and data collected by the sensors within the car. The system registers the activation of all restraint devices fitted in the vehicle as well as the occupancy and belt status on the front seats, thus "recognising" head-on, rear-end, side-on and multiple collisions and making the necessary distinctions. Even a possible rollover of the vehicle is clearly determined and reported in this way.

BMW introduced the Emergency Call function for the first time in the USA in 1997, offering this life-saving function in Germany since 1999. Cooperating closely with the William Lehman Injury Research Center (WLIRC), BMW's Accident Research Department has developed a special algorithm for the evaluation of vehicle data. The rescue services alerted by the BMW Headquarters are therefore informed in good time where the accident occurred, what vehicle is involved, and, thanks to the unique Enhanced Emergency Call function, whether the occupants were subject to an aggravated risk of injury. This, clearly, enables them to initiate appropriate rescue treatment quickly and with maximum efficiency.

The car itself automatically transmits its precise GPS position data, BMW call agents at the BMW Headquarters manned round the clock then calling for help without delay. They also call the occupants in the car, inform the nearest rescue centre and, through their psychological training seek to calm down the occupants.

The BMW Call Headquarters is even able to establish a direct voice connection linking the occupants of the car and the rescue services.

Such direct, immediate communication guarantees a smooth flow of information without any loss of data, the Enhanced Emergency Call function even working if there is no external mobile phone in the car or if such a mobile phone is currently not switched on, since data is transmitted for all services through a separate, firmly integrated telephone unit.

The Enhanced Emergency Call function may naturally also be activated manually, for example when the driver wishes to call for help for other motorists as quickly as possible.

Yet a further feature quite conceivable with BMW in future is an assistance system which, when determining that the driver is in a critical state of health, automatically switches over to an autonomous driving mode and brings the car to a controlled emergency halt. To put it in simple terms: the car automatically activates the hazard warning flashers and drives over to the side of the road – depending, of course, on traffic conditions – in a safe and controlled process, finally bringing the car to a halt. At the same time the system sends out an emergency call with all relevant data to initiate medical and traffic rescue services, again ensuring exactly the right response tailored with maximum efficiency to the circumstances encountered.

Such an Emergency Halt Assistant would use sensors to monitor the driver's vital data together with the BMW ConnectedDrive assistance systems already fitted in the car today. Assistance systems such as Lane Change Warning or Active Cruise Control with Stop & Go already provide the technical foundation for developing such an Emergency Halt System.

7. Committed to Sheer Driving Pleasure: Twenty-Five Years of BMW Mobile Service.

Premium quality is also essential when your Sheer Driving Pleasure is possibly interrupted on a rare occasion.

Using the most advanced and comprehensive breakdown assistance system in the world, the BMW Group ensures the ongoing mobility of BMW customers round the clock and on 365 days a year. BMW Mobile Service means qualified assistance right from the source – a philosophy which now goes back 25 years. No other car maker offers a similarly complete network of competent specialists with the most innovative service technology for these requirements. From the Contact Manager at the Control Center all the way to the technicians in the BMW Service Mobile, all the specialists serving to provide assistance in the event of a breakdown are experts trained specifically on BMW and MINI. Understandably, therefore, the customer is able to continue his journey after just a short stop in no less than 84 per cent of all cases.

All specialists at the Control Center in Munich are fully trained automotive master mechanics seeking to provide the right diagnoses as quickly as possible. In many cases competent advice provided straight from the Control Center enables the customer to remedy the problem himself and go on right away. If this is not possible, a fully trained technician in his BMW Service Mobile will set out to contact the repairs required directly on the customer's car.

A unique principle: BMW specialists helping BMW customers.
Constant availability of the experts required is ensured through close cooperation with BMW Partners within the BMW Dealer Network. The Service Mobiles are fully stocked with a broad range of Original BMW and MINI Parts, tools and a diagnosis unit. If necessary, the customer's car will be towed to a BMW Service Station where the problem will be remedied, if necessary outside of normal business hours and on the weekend. And if even this is not possible, the Mobile Care Scheme for BMW and MINI will cover the cost in Continental Europe of, say, a taxi, a rental car, hotel accommodation or transportation of the car and its occupants to their home address.

BMW Mobile Service is currently available in 19 European Countries and in nearly all other markets overseas. Worldwide more than 830 BMW Service Mobiles in their striking silver/white livery are constantly on the road to help the BMW and MINI customer.

8. Three Brands under One Roof: The BMW Group at the 2009 Frankfurt Motor Show.

Modern exhibition areas, a new face for the brand and unique opportunities to enjoy the best in Sheer Driving Pleasure – all this and more awaits the visitor to Hall 11 at the 2009 Frankfurt Motor Show.

For the first time the three BMW Group brands are being presented together in one building at the Show in Frankfurt, in the new Hall 11 on the Frankfurt Fairgrounds, where BMW, MINI, and Rolls-Royce Motor Cars are making a joint appearance. The most modern exhibition hall in Europe not only provides the space and facilities required for making world debuts and presenting the latest innovations of the three brands under one roof, but also offers ideal opportunities to show the cars and other exhibits in a brand-new style never seen before.

On a round track several hundred metres long and with an embanked curve BMW is for the first time highlighting the latest and most important models in an active driving scenario, offering visitors to the 2009 Frankfurt Motor Show the opportunity, for example, to experience the world debut of the BMW X1 and the BMW 5 Series Gran Turismo, enjoying the design and the special effect of these new models in full motion.

In this concept implemented fort he first time at a motor show, the Sheer Driving Pleasure so characteristic of BMW is not just the motto, but rather the fundamental highlight of the brands' appearance. The concept further enhanced by a 1,200-square metre LCD video wall and 360o Surround Sound highlights not only driving pleasure but also efficiency as an outstanding feature of BMW's ultra-modern models.

The new, particularly fuel-efficient low-emission models from various segments extending from the BMW 1 Series all the way to the BMW 7 Series are also presented at the Frankfurt Motor Show in active driving demos.

The new Hall 11: the right place to experience Sheer Driving Pleasure and the ideal venue for the world debut of new models.
The new Hall 11 at the Frankfurt Fairgrounds is directly adjacent to the new Main Entrance about half of all visitors to the 2009 Show will be using. Setting out from the heavily frequented car parks just outside the Fairgrounds, visitors will now proceed directly towards BMW, MINI, and Rolls-Royce.

BMW alone has an exhibition area of approximately 10,000 square metres or 108,000 square feet on the ground floor of Hall 11, MINI has an area of approximately 1,500 square metres or 16,000 square feet serving, among other highlights, for the world debut of two spectacular concept cars, and Rolls-Royce has a stand area of approximately 800 square metres or 8,600 square feet providing a prestigious setting in particular for the world debut of the Rolls-Royce Ghost.

In 2003, 2005 and 2007 the BMW brand was presented in the so-called agora area in a cube-like building, while MINI and Rolls-Royce showed their latest models and technologies in various other halls.

Discussion highlights: concepts for sustainability and the BMW EfficientDynamics development strategy.

Hosting the ZEIT ("TIME") Conference on the occasion of the 2009 Frankfurt Motor Show, the BMW Group is creating a forum for discussions on the subjects of mobility and sustainability also from the perspective of societal interests. The absolute highlight will be a panel debate with outstanding representatives of political life, the business world, architecture, and environmental protection. And at the BMW Group's Press Conference the company will also be presenting the 2009/2010 BMW Sustainable Value Report for the first time.

Sustainability has been a crucial of the BMW Group's corporate policy for many years, a responsible focus on social challenges such as climate protection and the preservation of natural resources being crucial to BMW product development and production processes as well as the use of effective recycling procedures.

Appling the EfficientDynamics development strategy, the BMW Group consistently – and successfully – seeks to implement a concept reducing fuel consumption and emissions on every new model while at the same time offering the driver even greater Sheer Driving Pleasure. As a result, BMW fleet consumption in Europe has dropped by more than 25 per cent within just two model generations. Currently the BMW Group brands offer models in all segments with the best balance of fuel economy versus performance in the entire market, thus beating the competition consistently in this respect.

The average fuel consumption of all BMW and MINI models sold in Germany was just 5.9 litres/100 kilometres (equal to 47.9 mpg imp) in 2008, with a corresponding CO_2 rating of just 158 grams per kilometre. This made the BMW Group significantly better than the average of all new vehicles registered in Germany in 2008, with average CO_2 emissions of 165 grams per kilometre.

At the 2009 Frankfurt Motor Show BMW is focusing in particular on current and future vehicle concepts developed in the context of EfficientDynamics. Particular highlights are the BMW ActiveHybrid 7 and the BMW ActiveHybrid X6, their different hybrid technologies representing special, ongoing renditions of the EfficientDynamics development strategy. And now, with BMW's first two models featuring their own special hybrid drive systems making their world debut at the 2009 Frankfurt Motor Show, the BMW Group offers an even wider range of opportunities to combine outstanding efficiency with the driving pleasure so typical of the brand.

The Junior Campus.

A further innovation launched by the BMW Group at the Frankfurt Show seeks to appeal to the youngest visitors and aficionados enjoying the various events: In the immediate vicinity of Hall 11, children and young people in the 3–13 age group have the opportunity to discover the principles of sustainability with all their senses in the Junior Campus. In a Workshop young visitors between 7 and 13 are able to learn the importance of using resources carefully in a playful and truly enjoyable process. And a Children's Driving School in the outer area of the Junior Campus will enable children between 3 and 6 to learn the right style of behaviour and conduct in road traffic.

The principle of sustainability is also of great significance in the design and layout of the BMW, MINI and Rolls-Royce show stands. A modular exhibition system for international shows therefore provides the opportunity to use most of the materials and components not just once, but several times and on various occasions. As an example, some 90 per cent of the steel components used at the 2009 Frankfurt Motor Show come from the BMW Group's existing stocks and will be used again for future shows and appearances by the three brands of the BMW Group.