BMW at the 2012 NAIAS Detroit.
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Note: The engine variants and equipment of the vehicles described in this media information correspond to the specifications valid for the US automobile market. Deviations in other markets are possible.

1. The new BMW 3 Series Sedan.

- New BMW face emphasises dynamic and elegant design.
- BMW 3 Series now available in three different equipment lines.
- Full-colour Head-Up Display for the sports sedan.
- Sporty suspension tuning with enhanced ride comfort.
- All engines with the latest BMW TwinPower Turbo technology.
- All engines can be combined with an eight-speed automatic gearbox.
- Driving Experience Control with Eco Pro mode; Auto Start-Stop function included as standard.

The sixth generation of the BMW 3 Series Sedan, the world's best-selling premium car, sets new benchmarks in terms of sporting prowess, elegance and comfort. The pioneering history of the 3 Series serves as inspiration for the new sports sedan, whose powerful styling represents a fresh interpretation and conscientious development of traditional BMW design cues. The new BMW face, with flat headlights reaching along as far as the BMW kidney grille, emphasises the elegantly dynamic design of the new BMW 3 Series. The sixth generation of the 3 Series has grown in size compared to its predecessor, with its wide track (front + 37 mm, rear + 47 mm) particularly prominent, and the car's increased length (+ 93 mm) and augmented wheelbase (+ 50 mm) also accentuate its sporting silhouette. Inside the new BMW 3 Series Sedan, the noticeable increase in space benefits the rear passengers above all. And the BMW 3 Series range is now also available in a trio of trim and equipment variants – the Sport Line, Luxury Line and Modern Line. Each presents its own individual take on the character of the sports sedan, with exclusive, high-quality material combinations and unbeatable build quality underlining the premium ambience of the new range.

Drive and chassis technology have always been key areas of expertise for the brand, and agility and driving dynamics remain outstanding attributes of the new BMW 3 Series Sedan. The new car belies its larger dimensions with a kerb weight 40 kilograms (88 lb) below that of its predecessor. In addition to the sports performance typical of the brand, the further enhanced levels of comfort on board the new 3 Series make a significant contribution to driving pleasure.

A choice of two refined, economical and muscular engines – all of which feature new BMW TwinPower Turbo technology – will be available for the new BMW 3 Series Sedan from launch. In addition to two further optimised diesel powerplants and the already successful six-cylinder petrol unit, customers can also enjoy the talents of the new turbocharged four-cylinder variant in the BMW 328i. This latest-generation petrol engine rewards the driver with a dynamic driving experience coupled with reduced fuel consumption and emissions.

BMW is the first carmaker to offer an eight-speed automatic gearbox in the premium mid-size segment. It can be specified in combination with any of the petrol and diesel engines in the range and links up with the Auto Start-Stop function that comes as standard. Compact and exceptionally efficient, it allows the new BMW 3 Series to match or outperform models fitted with the standard six-speed manual gearbox in terms of both fuel economy and emissions. The new eight-speed automatic brings together shift comfort, dynamic performance and efficiency of the highest order, making it the perfect partner for the new sedan's dynamic potential.

As components of the BMW EfficientDynamics technology line-up, the Auto Start-Stop function, Brake Energy Regeneration, Optimum Shift Indicator and need-based operation of ancillary components (including a disengageable air conditioning compressor) also play their part in reducing fuel consumption. Added to which, the new Driving Experience Control switch not only offers Comfort, Sport and Sport + options, but also ECO PRO mode, which gives all the models in the range the potential to further improve these figures. This switch helps drivers maximise fuel economy through their driving style, thereby enabling them to increase the distance they can travel between visits to the pumps.

Enhanced superiority, convenience and safety thanks to intelligent connectivity.

BMW ConnectedDrive offers an unmatched combination of driver assistance technology and mobility systems for the new BMW 3 Series range. A new arrival in the premium mid-size segment is the latest-generation full-colour Head-Up Display, which projects key information – in sharp resolution – onto the windscreen so it appears directly in the driver's field of view. Also available is Surround View with Side View and Top View, which gives a bird's-eye

perspective of the vehicle and the area around it. In addition, a parking assistance system helps the driver to manoeuvre into parking spaces. Among the other assistance technology available under the BMW ConnectedDrive banner are Active Cruise Control with Stop&Go function, the Lane Change Warning System and Lane Departure Warning System with camera-based Collision Warning system, which are offered for the first time in a BMW 3 Series Sedan. An innovative comfort access function allowing hands-free opening of the boot lid and the additional Active Protection occupant protection system are likewise included on the options list.

At a glance.

- The new 3 Series Sedan: sixth generation of the world's best-selling premium vehicle accentuates the brand's sporting character with its dynamic lines and athletic overall impression. The new 3 Series Sedan has also grown in terms of dimensions. Particularly striking are its wider track and, as a result, more impressive on-the-road presence. The flat design of the revised BMW kidney grille also serves to underline the car's sporting feel. A modern interpretation of the classic three-box design with sweeping bonnet, short front overhang, long wheelbase and set-back greenhouse allows the new BMW 3 Series Sedan to project the dynamic allure typical of BMW in even more concentrated form.

- Increased interior space: a 93-millimetre increase in length enhances the elegant, sporty silhouette of the 3 Series. The rear passengers also gain from the car's increased exterior dimensions and are welcomed by extra legroom inside the rear doors as they climb aboard. There is also 15 millimetres of additional knee room behind the front seats, while headroom is up by eight millimetres.

- Classic BMW interior: the cockpit wraps around the driver with a typically BMW driver focus and ensures that all important functions are within easy reach. The impressive ergonomics, high-grade materials and consummate workmanship underline the premium ambience of every model in the range.

- Three equipment lines: the new BMW 3 Series Sedan is available in three equipment lines in addition to the entry-level version. The Sport Line, Luxury Line and Modern Line allow customers to give their car a personal and eye-catching appearance and adapt it to their individual preferences. The careful coordination of equipment features embraces both exterior design elements and the selection of materials and colours for each model. An M Sport package with special exterior and interior features is in the pipeline for summer 2012.

- Outstanding performance and efficiency: powerful engines, top-class chassis technology and a body boasting impressive torsional rigidity allow the new BMW 3 Series to build on its position as the sportiest sedan in its segment. Ride comfort is likewise taken to a new level. Agility and driving

dynamics remain specialities of the sports sedan and are key ingredients in the enviable driving pleasure it offers its owners.

- Improved vehicle handling and enhanced driving pleasure: a longitudinally mounted engine, rear-wheel drive and 50:50 weight distribution are traditional 3 Series features which have characterised driving pleasure in every generation of the car. Two torquey, refined and economical engines, all of which feature state-of-the-art BMW TwinPower Turbo technology, will be available for the new BMW 3 Series Sedan from launch.

- BMW EfficientDynamics technology in action: noticeable increases in output are accompanied by reductions in fuel consumption and emissions – significant in some cases – over the previous-generation 3 Series. The Auto Start-Stop function comes as standard with all engine-gearbox combinations.

- BMW 328i with 2.0-litre displacement: its BMW TwinPower Turbo four-cylinder engine fronts a new generation of light and powerful petrol units which fit the new BMW 3 Series' dynamic concept like a glove. The state-of-the-art turbocharged powerplant develops 180 kW/245 hp and peak torque of 350 Nm (258 lb-ft) from as low down as 1,250 rpm, accelerating the BMW 3 Series from 0 to 100 km/h (62 mph) in 5.9 seconds. Average fuel consumption is just 6,4 litres per 100 kilometres (44.1 mpg imp).

- The BMW 335i is a gift to six-in-line fans: the BMW TwinPower Turbo straight-six petrol engine with 3.0-litre displacement develops peak output of 225 kW/306 hp and maximum torque of 400 Nm (295 lb-ft) at just 1,200 rpm, ensuring that the new BMW 3 Series outstrips the performance of its predecessor, while undercutting its fuel consumption and emissions.

- And finally, the first full-hybrid compact sports sedan will celebrate its premium segment premiere in autumn 2012. The new BMW ActiveHybrid 3 will see innovative BMW ActiveHybrid drive technology blend with the sporting character of the BMW 3 Series to dynamic and efficient effect.

- Eight-speed automatic gearbox for all models: the new sports sedan comes as standard with a cutting-edge six-speed manual gearbox. An eight-speed automatic, which supports the Auto Start-Stop function, can be specified as an option in conjunction with all the petrol engines for the new BMW 3 Series.

- Driving Experience Control with ECO PRO mode comes with four driving programs: the new function allows the driver to choose between sporty, ultra-sporty, comfortable and extremely economical driving.
  ECO PRO mode helps drivers of all 3 Series models to maintain an economy-optimised driving style and therefore increase the distance the car can travel on each tank of fuel. Brake Energy Regeneration, the Optimum Shift Indicator, a disengageable air conditioning compressor in many models and the need-based operation of ancillary components all contribute to further reductions in fuel consumption.

- BMW ConnectedDrive gives safety a boost: a constantly expanding range of driver assistance systems responding to the most diverse driving situations ensure even greater safety and assurance. In a new development in this premium class, the new BMW 3 Series Sedan will be available with the latest-generation full-colour Head-Up Display. Safety is further enhanced by the Lane Change Warning System and Lane Departure Warning System. The Active Protection safety package, Advanced eCall and preventive occupant protection measures help to avoid accidents or, should the worst come to the worst, reduce their impact.

- BMW ConnectedDrive meets the most advanced standards of infotainment: high-functionality interface technology enables the driver and passengers to make extensive use of external mobile phones and music players inside the new BMW 3 Series Sedan. New Bluetooth office functions allow internet-based services such as weather, news etc., as well as calendar entries and text-based messages (SMS and e-mail), to be viewed in the Control Display of the iDrive operating system and read out via the Text to Speech function.

- Maximising comfort with BMW ConnectedDrive: comfort-enhancing technologies developed under the BMW ConnectedDrive umbrella include BMW Parking Assistant, Surround View, Active Cruise Control with Stop&Go function, Speed Limit Info including No Passing Info display.

- A body structure boasting particularly high torsional rigidity and far-reaching active and passive safety systems provides maximum occupant protection. An intelligent lightweight body construction with flow-optimised underbody structure, Air Curtain technology – making its debut – for improved air flow around the front wheels, and sophisticated chassis technology with high light-alloy content play their part in laying on sporty handling, high agility and further enhanced ride comfort.

- A wide range of storage compartments enhance practicality: two large drinks holders are now integrated into the centre console ahead of the gearshift lever; these can be replaced by the oddments tray also included in the range of standard equipment. The front and rear door pockets now contain generous stowage surfaces, and the front doors have space for drinks bottles up to one litre in size. Boot capacity has increased by 20 litres. An optional through-loading system with 40:20:40 folding rear seat backrest offers flexible transportation solutions for bulky goods.

2. The BMW ActiveHybrid 5.

BMW takes the development of intelligent hybrid drive systems to the next level with the introduction of the BMW ActiveHybrid 5 – another series-produced model in which a combustion engine and electric motor join forces to enhance both efficiency and the brand's hallmark driving pleasure.
The BMW ActiveHybrid 5 brings together a BMW TwinPower Turbo six-cylinder in-line engine, an electric drive system and an eight-speed automatic gearbox for the first time. The latest generation of BMW ActiveHybrid technology also adds precisely controlled – and therefore extremely effective – energy management to the mix. All of which gives the BMW ActiveHybrid 5 an exceptional balance of performance and fuel economy for the premium executive car class. Its drive system generates combined output of 250 kW/340 hp, allows the car to be driven on electric power alone up to 60 km/h (37 mph), accelerates the BMW ActiveHybrid 5 from 0 to 100 km/h (62 mph) in 5.9 seconds, limits average fuel consumption to between 6.4 and 7.0 litres per 100 kilometres (44 – 40 mpg imp) and has CO_2 emissions of just 149 – 163 grams per kilometre (figures according to EU test cycle, may vary according to the tyre format specified).

The 225 kW/306 hp six-cylinder in-line engine with BMW TwinPower Turbo technology in the BMW ActiveHybrid 5 is the same unit renowned for its free-revving capability, pulling power and efficiency in the BMW 535i. The electric motor, meanwhile, develops 40 kW/55 hp and is supplied with energy by a high-performance lithium-ion battery integrated into the luggage area.

A harmonious blend of power from the two drive systems is transferred to the rear wheels by the eight-speed automatic gearbox. In addition to its full-hybrid construction, which enables purely electric and therefore emission-free driving in urban conditions, the BMW ActiveHybrid 5 boasts not only the sportiest performance in its market segment but also a double-digit percentage improvement in fuel economy over the BMW 535i.

In order to fully exploit the potential of the BMW ActiveHybrid technology, the intelligent energy management of the power electronics in the

BMW ActiveHybrid 5 uses a host of innovative functions to ensure the drive system runs efficiently. The lithium-ion high-performance battery is charged when the car is coasting or braking, the electric motor performing the role of a generator feeding energy into the high-voltage battery. By contrast, under acceleration the electric motor takes on a boost function. Here, it assists the petrol engine by generating an ultra-dynamic burst of power, lending the sedan's sporty driving experience a noticeably sharper edge. Added to which, while coasting at speeds of up to 160 km/h (100 mph) in ECO PRO mode, the combustion engine can be switched off and fully decoupled. This coasting mode combines comfortable driving with optimum utilisation of the kinetic energy already generated. To avoid periods with the engine running at idle – at junctions or in traffic tailbacks, for example – the BMW ActiveHybrid 5 is equipped with a hybrid start-stop function. Plus, the power electronics in the BMW ActiveHybrid 5 are linked up with the standard-fitted navigation system Professional. This allows forward-looking analysis of the driving situation, enabling the drive components to be primed to deliver maximum efficiency (the effect may vary according to the quality of the available navigation data). All the hybrid-specific components of the drive technology and energy management systems have been developed specially for use in the BMW ActiveHybrid 5. The result is an extremely well-rounded overall concept, which also provides a convincing demonstration of the BMW ActiveHybrid technology's qualities out on the road. Needless to say, all of the new hybrid components are designed to last for the life of the vehicle.

The BMW ActiveHybrid 5 sees the sporty yet elegant body design of the BMW 5 Series Sedan complemented by bespoke touches which highlight the identity of its drive technology. The "ActiveHybrid 5" lettering on the C-pillars, BMW kidney grille with galvanised slats and exhaust matt chrome tailpipes set the exterior apart from the other models in the range. Available as an option, meanwhile, are 18-inch Streamline light-alloy wheels displaying exceptional aerodynamic efficiency. The BMW ActiveHybrid 5 is the only model in the BMW 5 Series line-up to be available in the exterior paint shade Bluewater metallic, and it also stands out visually from all other 5 Series variants with door sill strips bearing "ActiveHybrid 5" lettering, an aluminium plate on the centre console with the same ID, a bespoke engine cover and the visible "ActiveHybrid Power Unit" inscription on the special casing for the high-performance battery accommodated in the luggage area.

The selection of interior colours, upholstery and interior trim elements reflect the range offered for the other BMW 5 Series Sedan variants. And added to the standard-fitted array of comfort-enhancing features is not only the navigation system Professional, but also a 4-zone climate control system with stationary air conditioning. A wide range of driver assistance systems and BMW ConnectedDrive mobility services, as well as virtually all the other optional extras available for the conventionally powered BMW 5 Series Sedan, can also be specified for the BMW ActiveHybrid 5.

Innovative combination: award-winning six-cylinder in-line engine, newly developed electric drive system.

This is the first time that a six-cylinder in-line engine has been included as part of a BMW ActiveHybrid system. The 3.0-litre petrol unit, which develops 225 kW/306 hp and peak torque of 400 Newton metres (295 lb-ft), represents a passport to increased driving pleasure and efficiency. The BMW TwinPower Turbo technology of the six-cylinder engine, which has already won the international Engine of the Year Award two years in succession, comprises a twin-scroll turbocharger, High Precision Direct Injection and VALVETRONIC variable valve timing.

The synchronous electric motor of the BMW ActiveHybrid 5 is integrated into the housing of the eight-speed automatic gearbox, saving space. The link-up between the electric motor and gearbox is controlled by a clutch and the motor's operating temperature is regulated by the combustion engine's cooling system. The electric drive system develops 40 kW/55 hp and makes 210 Newton metres (155 lb-ft) of torque available from rest. The motor is supplied with energy by a lithium-ion high-performance battery, likewise specially developed for the BMW ActiveHybrid 5. The high-voltage battery is encased in a special high-strength housing and positioned between the wheel arches in the luggage area, providing it with optimum protection. It consists of 96 cells, has its own cooling system and offers usable energy capacity of 675 Wh. The integration of the lithium-ion high-performance battery into the luggage area reduces the load capacity of the BMW ActiveHybrid 5 to 375 litres, 145 litres lower than that of a BMW 5 Series Sedan variant powered purely by a combustion engine.

The BMW ActiveHybrid 5 has both a conventional 14-volt power supply and a high-voltage supply with an operating voltage of 317 volts. They are linked up by a voltage transformer ensuring that maximum electric energy can be used to enhance driving dynamics and comfort in any operating phase. Like the electric motor, the air conditioning compressor is also fed with power from the lithium-ion high-performance battery exclusively via the high-voltage supply. This ensures a pleasant interior climate, even when the combustion engine is switched off – i.e. when the car is at a standstill, operating purely on electric power or in coasting mode. In addition, the stationary climate control function can be used to cool the interior before the engine is started up.

Intelligently controlled hybrid technology: unprecedented precision for superior efficiency.

Up to a speed of 60 km/h (37 mph), the BMW ActiveHybrid 5 can operate in all-electric mode for zero emissions in town. The lithium-ion high-voltage battery can store sufficient energy to give an all-electric driving range of up to four kilometres (approx. 2.5 miles) at an average speed of 35 km/h (22 mph).

The internal combustion engine is only started when the driver requires more power: it is then engaged automatically. The electric motor provides a “boost” function to supplement the engine when accelerating. Maximum combined power is 250 kW/340 hp, with maximum torque of 450 Newton metres. Under combined ICE/electric power, the BMW ActiveHybrid 5 delivers a 0 to 100 km/h (62 mph) acceleration time of 5.9 seconds.

Hybrid-specific Auto Start-Stop function and coasting mode.

Thanks to the specially designed Hybrid Auto Start-Stop function, there are no compromises on comfort even when the vehicle is stopped in traffic for longer periods – after the internal combustion engine is shut off, the automatic climate control simply runs off the lithium-ion battery. When the driver releases the brake, the vehicle will restart on either the electric motor alone or the electric motor and the petrol engine, depending on the high-voltage battery’s current charge level and on how much power the driver wants.

Another innovation being pioneered in the BMW ActiveHybrid 5 further improves efficiency by shutting the internal combustion engine down not only when the vehicle is stationary, or when driving in town, but also on overrun. In the BMW ActiveHybrid 5, this coasting mode is available at any speed up to

160 km/h (100 mph). Coasting mode switches off the petrol engine and disconnects it from the drive shaft. From this point on, the BMW ActiveHybrid 5 continues moving soundlessly, with zero emissions and with no engine braking effect. The potential efficiency improvements are further enhanced by tyres with reduced rolling resistance. In coasting mode too, as with all-electric mode for urban driving, all safety and comfort functions remain fully operational.

Intelligent energy management with proactive analysis of the driving situation.

The advanced power electronics coordinate the operation of the internal combustion engine and electric motor with precise reference to the driving situation. For even more efficient energy management in the BMW ActiveHybrid 5, this functionality has been extended to include proactive analysis of the driving situation. To support this, the power electronics are integrated with the standard-fitted Professional navigation system, which means they can access and analyse data indicating an upcoming change in external conditions or driver requirements at a very early stage. Based on this analysis, the vehicle can be prepared in advance for the relevant requirements so that all powertrain systems and the on-board electronics are managed appropriately and in such a way as to make the most efficient possible use of the available energy.

Factors that may cause a change in powertrain operating strategy include the topography of the route and speed limits. For example, if the system knows that a hilly stretch is coming up soon, the BMW ActiveHybrid 5 can invest all the high-voltage battery's electrical energy in providing supplementary driving power, since the battery will be recharged "at no cost" during the subsequent descent. On longer downhill sections the electric motor's generator function, too, can be enlisted to recharge the high-voltage battery with no loss of speed. The operating strategy can also be managed so as to ensure that the high-voltage battery is as fully charged as possible when nearing the end of the journey, thereby increasing the electric driving range on the "last lap".

The operating status of the powertrain components is shown in intuitive, model-specific displays in the instrument cluster and in the Control Display of the BMW ActiveHybrid 5. As well as the energy flow and energy recuperation

display, these include a further gauge next to the rev counter which shows the boost effect being provided by the electric motor during acceleration. A display in the iDrive interface provides a variety of information – for example on the lithium-ion high-voltage battery's current charge level and the power-sharing between the internal combustion engine and the electric motor in the course of a journey.

Exceptional hybrid model, typical BMW 5 Series: highest standards of driving dynamics, safety and comfort.

The chassis specifications of the BMW ActiveHybrid 5 include a double-wishbone front axle and integral rear axle, electromechanical power steering including the Servotronic speed-sensitive power assist function, a high-performance brake system and 17-inch alloy wheels. Dynamic Damper Control, featuring electronically controlled damping, is optionally available. The Dynamic Stability Control (DSC) system, which stabilises the vehicle by applying braking pressure and reducing engine power, also incorporates functions such as Dynamic Traction Control (DTC), the Anti-lock Braking System (ABS), Cornering Brake Control (CBC), Dynamic Brake Control (DBC), Brake Assist, Fading Compensation, a Dry Braking function and Start-Off Assistant.

The hybrid-specific safety features, which protect the lithium-ion high-voltage battery and the power electronics, are integrated in the BMW 5 Series' elaborate integrated active and passive safety concept. In a collision, high-strength structural components and large deformation zones help to keep impact forces away from the passenger cell and also from the hybrid drive components. Other standard safety systems on the BMW ActiveHybrid 5 include front and side airbags, side curtain head airbags for both rows of seats, three-point inertia-reel belts on all seats, belt force limiters and belt latch tensioners on the front seats and ISOFIX child seat attachments in the rear.

In the BMW ActiveHybrid 5, too, the standard-fitted Driving Experience Control switch offers not only Sport+, Sport and Comfort set-ups (as well as Comfort+ mode if the optional Dynamic Damper Control is specified), but also ECO PRO mode. The latter supports a particularly relaxed and fuel-efficient driving style, and makes more frequent use of all-electric mode. As an

alternative to the standard-fitted automatic transmission, a sports automatic with faster shift times is optionally available.

BMW ConnectedDrive systems optionally available for the BMW ActiveHybrid 5 include Park Distance Control, a rear-view camera, Surround View, Adaptive Headlights, High-Beam Assistant, Speed Limit Info, BMW Parking Assistant, Lane Change Warning, Lane Departure Warning, BMW Night Vision with pedestrian recognition and the BMW Head-Up Display. Innovative technologies also allow in-car integration of the Apple iPhone, other smartphones and music players, and use of the Real-Time Traffic Information and Apps functions.

To further enhance comfort and individuality, the standard-specification 4-zone automatic climate control and navigation system Professional can be supplemented by options such as active seats, active seat ventilation, Comfort Access, the Smart Opener for the tailgate, the Soft Close Automatic function for the doors, a power-operated glass roof and high-end audio and rear entertainment systems.

BMW ActiveHybrid 5: intelligent technology points the way forward.
The BMW ActiveHybrid 5 features newly developed hybrid components that are combined for the first time with a six-cylinder BMW TwinPower Turbo engine, and innovative functions for further improved efficiency and driving enjoyment. At the same time it broaches yet another market segment, taking BMW's hybrid development work a further step forward. As always, BMW ActiveHybrid technology is offered in a form which is optimally adapted to the requirements of the particular vehicle concept and market segment.

At a glance.

- World premiere of the BMW ActiveHybrid 5, the most powerful and efficient full hybrid in its segment.
- Exceptional balance between power output (250 kW/340 hp) and CO_2 emissions (149 g/km).
- Prominent electric driving experience; range under purely electric power: four kilometres (approx. 2.5 miles), top speed under purely electric power: 60 km/h (37 mph).
- Coasting mode (with the engine switched off) active at up to 160 km/h (100 mph).
- Forward-looking intelligent energy management.
- E-boost function delivers extremely dynamic acceleration.
- Stationary climate control as standard.

3. The new BMW M5.

A change in leadership is nigh in the exclusive segment that brings together ultra-dynamic business sedans with track-oriented drive and chassis technology. The new BMW M5 is poised to build on the tradition of its predecessors and once again redefine the performance experience available in a four-door car. Displaying the conceptual harmony, state-of-the-art technology and astonishingly dynamic handling for which BMW M cars have become renowned, the fifth-generation BMW M5 stirs the passion of keen drivers for top performance and blends it, in inimitable style, with the universal qualities of a top-class premium sedan. The most powerful engine ever fitted in a series-produced model from BMW M GmbH, the innovative Active M Differential – which optimises power transfer to the rear wheels – and model-specific chassis technology developed on the back of extensive racing expertise all secure the BMW M5 a dominant position among high-performance sedans.

Under the bonnet of the new BMW M5 lies a newly developed, high-revving V8 engine with M TwinPower Turbo technology producing maximum output of 412 kW/560 hp at 6,000 – 7,000 rpm and peak torque of 680 Newton metres (502 lb-ft) between 1,500 and 5,750 rpm. The instantaneous power delivery and sustained thrust familiar from M cars are the key to acceleration of 0–100 km/h (62 mph) in 4.4 seconds (0–200 km/h / 124 mph: 13.0 seconds). Average fuel consumption in the EU test cycle stands at 9.9 litres per 100 kilometres / 28.5 mpg imp (CO_2 emissions: 232 g/km).

While output has increased by around 10 per cent and maximum torque is up by more than 30 per cent, the new BMW M5 burns over 30 per cent less fuel than its predecessor. The significantly improved balance between the performance-focused M experience and the car's fuel consumption stems from the exceptionally impressive efficiency of the new V8 engine and from far-reaching Efficient Dynamics technology, including the Auto Start-Stop function in conjunction with the standard seven-speed M Double Clutch Transmission Drivelogic.

In order to channel the engine's imposing power development into inspiring performance characteristics, the new BMW M5 boasts chassis technology – including electronically controlled dampers, M-specific Servotronic steering, a stability control system with M Dynamic Mode and high-performance compound brakes – which was developed on the back of racing expertise and is weight-optimised and tuned to the output profile of the powerplant. This technology combines with model-specific, function-related design features – which make a direct contribution to optimising the supply of cooling air and enhancing aerodynamic characteristics – to create the conceptual harmony typical of BMW M cars. The precise interplay of the drive system, chassis and design has been refined in extensive and detailed testing on the Nordschleife circuit at the Nürburgring to ensure unbeatable longitudinal and lateral acceleration, handling characteristics and braking performance.

The interior design, control concept and innovative equipment features of the new car also play their part in creating the exclusive M experience. Sports seats, an M leather steering wheel, and an M-specific instrument cluster and centre console lend the cockpit a classical sports car feeling. For the first time, two M Drive buttons have been fitted as standard for the driver to call up the ideal car set-up for the situation at hand. High-quality, precisely finished materials, generous levels of space and the extensive range of equipment fitted as standard generate the premium ambience – laced with cutting-edge luxury – of a BMW 5 Series model. Moreover, customers can also give their car the personal touch, since virtually the full range of options for the BMW 5 Series Sedan are also available for the M5, including a host of driver assistance systems and mobility services from BMW ConnectedDrive.

Body design: hallmark M design elements make a genuine contribution to meeting technical requirements.

The design of the body faithfully showcases the standout characteristics of the new BMW M5. The dynamic proportions and stylishly authoritative appearance of the BMW 5 Series Sedan has been further enhanced by the addition of M-specific design features which are geared precisely to meeting the technical demands of the car, making them a central element of the high-performance Sedan's overall concept.

The design of the front apron clearly embodies the supreme power of the new V8 engine. The contour lines of the bonnet converge in a V to the brand's hallmark double-kidney grille. The wide-spread arrangement of the customary M black slats – like the three large air intakes in the lower section of the apron – emphasise the cooling air requirement of the engine behind the grille. At the lower edge of the front end, air-channelling flaps developed on the race track ensure optimised aerodynamics.

The standard-fitted bi-xenon headlights generate daytime running light with visually unique LED light rings. Cutting across the top of the customary twin round headlights are LED accent lights to create the characteristic intent look – both during the day and in night-time driving.

The long wheelbase, set-back passenger compartment and high-gloss black side window borders clearly accentuate the stretched silhouette of the new BMW M5. Prominently flared, muscular wheel arches, wheels sitting flush with the bodywork and lowered suspension enhance the car's sporting presence when viewed from the side. The model-specific 19-inch M light-alloy wheels in double-spoke design also assist in this regard. The side skirts of the new BMW M5 also have a design very much of their own. The aerodynamically honed form of the exterior mirrors is accentuated by a horizontal colour gradation, while the front side panels sport a fresh take on the hallmark M gills.

The bespoke rear apron draws particular attention to the drive forces channelled through the rear wheels. A diffuser integrated into the lower edge of the apron provides efficient airflow through the back end of the underfloor section. A signature M feature of the new BMW M5 is the twin-pipe exhaust system, whose tailpipes are positioned wide to either side of the diffuser. The subtle gurney-style rear spoiler on the boot lid also aids the car's aerodynamics.

The drive system: high-revving V8 engine with M TwinPower Turbo technology sets new standards in output and efficiency.

For the first time, a BMW M5 has a turbocharged engine to thank for its outstanding dynamics. The high-revving V8 unit with M TwinPower Turbo technology mobilises the highest output ever generated by a BMW M car, and at the same time provides the most efficient balance yet between performance and fuel consumption. The 4.4-litre engine develops top output

of 412 kW/560 hp at 6,000 – 7,000 rpm, while its maximum torque of 680 Newton metres (502 lb-ft) is on tap between 1,500 and 5,750 rpm. The rev limiter intervenes at 7,200 rpm. The rev band, which offers extremely dynamic acceleration between the arrival of peak torque and the availability of maximum output, is therefore almost three times as wide as that of the predecessor unit.

The M TwinPower Turbo package of technology developed for the engine powering the new BMW M5 combines design features derived directly from motor racing with innovations spawned by the rigorous implementation of the Efficient Dynamics strategy. It comprises a turbocharging system based on the Twin Scroll Twin Turbo principle, including cross-bank exhaust manifolds, High Precision Direct Petrol Injection and VALVETRONIC variable valve control. Added to which, the engine has an extremely powerful cooling system and wet sump lubrication optimised for high lateral loads. This is a combination without parallel worldwide and produces the suitably exclusive performance characteristics you would expect from a BMW M car. The experience is defined by instantaneous responses and extremely impressive pushing power developed from extremely low revs and maintained into the higher reaches of the engine speed range.

The two turbochargers of the eight-cylinder engine are accommodated, along with the catalytic converters, in the V-shaped space between the cylinder banks. This arrangement allows model-specific positioning of the intake and exhaust ducts with their reduced pipe length and larger cross sections. The cross-bank exhaust manifold ensures additional optimisation of the gas flow. It is made up of four separate exhaust ducts, which are connected with the exhaust ports of two combustion chambers – one on the left-hand cylinder bank and one on the right. Identical pipe lengths and a combustion chamber arrangement mirroring the firing sequence ensure the gas flows through the exhaust ducts at an even rhythm. In each case, two of the four exhaust gas ducts supply one of the two turbos, having been channelled together shortly before they reach the turbine. The result is a consistent level of pressure acting on the turbochargers, without any kind of counter-flow, ensuring that the turbines respond extremely rapidly.

The responsiveness, intensity and smoothness of power delivery results in impressive acceleration. The sprint from rest to the 100 km/h (62 mph) mark

is all over in 4.4 seconds, and from that point progress continues with barely any let-up. Indeed, the M5 needs just 13.0 seconds to race from 0–200 km/h (124 mph). Maximum speed is electronically restricted to 250 km/h (155 mph); if the optional Driver's Package is specified, this limit is raised to 305 km/h (190 mph).

Credit for the advances made on the efficiency front can also be put down to the M TwinPower Turbo technology package. The turbocharging raises the output of the M5 despite its lower displacement, and the dethrottling further enhances the engine's efficiency. The High Precision Injection petrol direct injection system uses injectors positioned centrally between the valves to ensure an extremely precise supply of fuel to the combustion chambers. In addition, VALVETRONIC fully variable valve control and Double-Vanos fully variable camshaft control improve both torque development and fuel efficiency. The volume-controlled oil pump and a range of other Efficient Dynamics measures – including Brake Energy Regeneration and the Auto Start-Stop function – deliver an extra boost to efficiency. As a result, the new BMW M5 records average fuel consumption in the EU test cycle of 9.9 litres per 100 kilometres (28.5 mpg imp) and CO_2 emissions of 232 grams per kilometre.

High performance applies to power transfer as well: the seven-speed M Double Clutch Transmission with Drivelogic.

The new BMW M5 is kitted out with a seven-speed double-clutch transmission to ensure that the transfer of engine output to the rear wheels serves up the time-honoured M experience. The M DCT Drivelogic system developed specially for the M5 delivers exceptionally fast and clean gear changes both in automated mode (D) and manual (S). The model-specific M gear selector allows the driver to choose between D and S mode, and to engage reverse. It also offers a sequential shift pattern for the manual gearshift mode. Alternatively, the driver can also change gears manually using the standard-fitted shift paddles on the steering wheel.

M DCT Drivelogic offers three shift programs in S and D mode. When the stability control system is switched off, the Launch Control function allows the driver to achieve the maximum acceleration force possible from a standstill – as permitted by the condition of the road – by pressing the accelerator down with

maximum force. Meanwhile, in stop-start traffic, comfort is further enhanced by the new Low Speed Assistance function.

Innovation for unbeatable traction in dynamic driving situations: the Active M Differential.

BMW M cars are equipped with a specially developed rear axle differential with a variable locking function to allow the driver to enjoy the benefits of rear-wheel drive to the full – in the form of the sharpest possible driving dynamics. In the new BMW M5, this innovation ensures an even more precise distribution of drive between the right and left rear wheel according to the driving situation. The Active M Differential optimises stability with the help of an electronically controlled multi-plate limited-slip differential.

The rear axle's multi-plate limited-slip differential works with extremely high precision and speed. Its control unit is connected with the DSC (Dynamic Stability Control) system and also takes into account the position of the accelerator pedal, the rotational speed of the wheels and the car's yaw rate. Every driving situation is therefore precisely analysed and an impending loss of traction on one side of the car identified at an early stage. The degree of lock is adjusted as required within a fraction of a second and can range from zero to 100 per cent. Wheel spin is thus also prevented on slippery surfaces, in instances where the right and left rear wheel have widely differing friction coefficients, in tight bends and when changing direction extremely dynamically. Optimising traction in this way also provides unbeatable driving stability in challenging conditions and allows impressively dynamic acceleration out of corners.

M-specific chassis, electronically controlled dampers, M Dynamic Mode.

The new BMW M5 comes with bespoke chassis technology whose construction and set-up are defined by extensive expertise from the race track. Like the integral rear axle, whose subframes are bolted rigidly to the body, the double-wishbone front axle boasts specific kinematics and newly developed components made from forged aluminium. Chassis mountings using large panels at the front and rear axle ensures dynamic forces are passed evenly through to the body.

The new BMW M5 is equipped as standard with electronically controlled dampers. Dynamic Damper Control uses electrohydraulic damping force adjustment to provide a set-up suited to the driving situation or the wishes of the driver. There are three damper settings to choose from.

The hydraulic rack-and-pinion steering with variable ratio is another M-specific feature, combining precise directional stability with a need for less steering effort when manoeuvring. The M Servotronic system has also been specially configured and allows the driver to adapt the characteristics of the speed-sensitive power assistance to individual tastes and requirements via three settings.

In addition to applying brake impulses and reducing engine output to stabilise the car, the DSC system in the new BMW M5 also employs the services of the Anti-lock Braking System (ABS), Cornering Brake Control (CBC) and Dynamic Brake Control (DBC), as well as a Brake Assistant, Brake Drying function and Start-Off Assistant. M Dynamic Mode (MDM) can be activated to override the basic setting by pressing the DSC button on the centre console. This mode generates the familiar M self-steering response by raising the intervention thresholds of DSC. “DSC Off” mode can also be activated at the touch of a button.

High-performance compound brakes, extensive safety equipment, extremely impressive power-to-weight ratio.

The high-performance braking system of the new BMW M5 guarantees outstanding stopping power. The further development of the remarkable compound construction has resulted in further optimised braking performance – resisting fade even under heavy loads – and an enviable degree of feel. The six-piston fixed-calliper brakes are radially bolted to the pivot bearing. The M-specific light-alloy wheels for the new BMW M5 come in 19-inch format as standard and are fitted with 265/40 R19 tyres at the front and 295/35 R19 items at the rear.

Hallmark M handling and occupant protection both benefit from the extraordinary strength of the body structure. An intelligent mix of materials containing a high proportion of high-tensile and ultra-high-tensile steels, as well as aluminium, help to minimise the car’s weight. Like the bonnet and front side sections, the doors are also made from aluminium, as are virtually all the

chassis components. With a power-to-weight ratio of 3.3 kg (approx. 7 lb)/hp, the new BMW M5 represents a substantial step forward from its predecessor in this area as well. The safety equipment fitted as standard includes front and side airbags, side curtain head airbags for both rows of seats, three-point inertia reel seat belts on all seats, front belt force limiters and belt tensioners, and ISOFIX child seat attachments in the rear.

Interior and controls: sports car cockpit with premium ambience.
The interior of the new BMW M5 brings together an inimitable combination of the driver-oriented cockpit design of a sports car, the spaciousness of a prestige sedan and the luxurious feel of a premium model. Bespoke M sports seats, Merino leather upholstery with extended features and exclusive aluminium Trace interior trim strips are all standard equipment, as is the iDrive control system with an up to 10.2-inch Control Display. The instrument cluster with black-panel technology includes classical circular instruments in traditional BMW M car style, with red needles and white illumination, as well as model-specific displays and the M logo in the rev counter.

Two M Drive buttons now included to activate the individually configured set-up options.
Arranged around the gearshift lever on the leather-covered centre console designed specially for the new BMW M5 are the buttons allowing drivers to select their preferred settings for all the adjustable drive system and chassis functions. The DSC mode, performance characteristics of the engine, Dynamic Damper Control mapping, M Servotronic responses and M DCT Drivelogic shift program can all be adjusted independently. This allows drivers to put together a detailed set-up configuration for their car and store it by holding down one of the two M Drive buttons on the multifunction steering wheel.

With two M Drive buttons now available, drivers can use the M1 button, for example, to put a sporty configuration within easy reach and the M2 button to keep a comfort-biased option in the locker for when they'd rather take it easy. This ensures they always have the desired option at their fingertips. Whichever setting they select will remain activated until they cancel it by pressing the button again or change to the other M Drive set-up. Cancelling one of the set-up options restores the car's basic efficiency and comfort-

focused configuration, as is the case when you switch on the engine. The set-up options selected using the M Drive buttons can also be adjusted via the iDrive menu.

Head-Up Display with M-specific information comes as standard.
The M Drive configuration also includes the information shown on the Head-Up Display, which comes as standard on the new BMW M5. In addition to a digital speed readout and tips from the optional Speed Limit Info, the M-specific version of the Head-Up Display also shows the gear currently engaged and a multicolour rev counter symbol, complete with Shift Lights.

The new BMW M5 also comes as standard with four-zone automatic climate control, heated seats and electric seat adjustment (including memory function for the driver and front passenger), xenon headlights, ambient light, an alarm system and the BMW Professional radio. In addition, almost all of the items of optional equipment available for the BMW 5 Series Sedan can be ordered as an option. Among the highlights are the Navigation system Professional with a hard disk, the electrically operated glass roof, M multifunction seats, active seats, active seat ventilation, Comfort Access, an electrically adjustable steering column, the Soft Close Automatic function for the doors and a trailer coupling with electrically pivoting trailer hitch ball.

The range of optional driver assistance systems and mobility services from BMW ConnectedDrive include, among other features, Park Distance Control, a rear view camera, Adaptive Headlights with cornering lights, High-Beam Assistant, Speed Limit Info, the Lane Change Warning System, the Lane Departure Warning System, Surround View and BMW Night Vision with pedestrian detection. Plus, innovative technologies optimise the integration of the Apple iPhone and other smartphones, as well as music players, including the use of internet-based services. The apps option allows iPhone owners to receive Web Radio stations, for example, and display Facebook and Twitter posts on the on-board monitor. The likewise new Real-Time Traffic Information function keeps the driver supplied with impressively accurate traffic bulletins and diversion recommendations.

At a glance.

- Fifth generation of the world's most successful high-performance sedan in the premium segment of the executive class; new BMW M5 is an exceptionally dynamic high-performance sports car with four doors and five seats; consistent further development of the vehicle concept initiated in 1984 with the first-generation BMW M5; compelling track potential combines with the comprehensive practicality of a luxurious business sedan; groundbreaking character headlined by significantly improved efficiency, supreme long-distance comfort, and innovative driver assistance systems and infotainment functions.

- World premiere of a newly developed BMW M high-performance engine: high-revving 4.4-litre V8 engine with M TwinPower Turbo package – consisting of Twin Scroll Twin Turbo technology, cross-bank exhaust manifold, High Precision Direct Petrol Injection and VALVETRONIC fully variable valve control; 412 kW/560 hp at 6,000 – 7,000 rpm, maximum torque: 680 Newton metres (502 lb-ft) from 1,500 rpm; maximum speed: 7,200 rpm; wet sump lubrication optimised for high lateral loads, lag-free power delivery, typical M car thrust.

- Significantly improved balance between performance and fuel consumption: acceleration 0–100 km/h (62 mph) in 4.4 seconds, 0–200 km/h (124 mph) in 13.0 seconds, top speed: 250 km/h / 155 mph (305 km/h / 190 mph with M Driver's Package); average fuel consumption in EU test cycle: 9.9 litres/100 km (28.5 mpg imp); engine output 10 per cent up on predecessor model, maximum torque increased by 30 per cent, fuel consumption cut by more than 30 per cent; extensive Efficient Dynamics technology, including Auto Start-Stop function and Brake Energy Regeneration.

- Power transfer to the rear wheels via the seven-speed M Double Clutch Transmission Drivelogic; traction-optimised automatic gear selection; Launch Control; Low Speed Assistance; automatically activated parking

mode; M-specific gear selector; M leather steering wheel with shift paddles.

- Hallmark M conceptual harmony produces superior performance characteristics with precise interplay of drive and chassis technology, aerodynamics and weight balance; power-to-weight ratio: 3.3 kg (approx. 7 lb)/hp; M-specific suspension (front and rear axle kinematics), M Servotronic steering, Dynamic Damper Control, DSC stability control system including M Dynamic Mode; bodyshell mounting using special panels; lightweight compound high-performance braking system.

- Outstandingly agile handling thanks to innovative rear axle differential with Active M Differential; electronically controlled multi-plate limited-slip differential enables fully variable distribution of drive between the rear wheels to optimise traction and stability in dynamic lane change manoeuvres and acceleration out of corners; degree of lock can be varied between 0 and 100 per cent according to the situation; fast, precise and pre-emptive responses thanks to constant data cross-checking between the Active M Differential and DSC stability control system, and monitoring of the accelerator pedal position, wheel speed and yaw rate.

- Two individually configured set-ups for the car can be called up using the new M Drive buttons on the steering wheel; range of programmable parameters unique in the segment: engine response, M Servotronic responses, Drivelogic shift program, DSC mode, Dynamic Damper Control and information in the Head-Up Display.

- Characteristic body design with familiar M aesthetics reflecting the car's extremely dynamic yet precisely controllable nature; specific design features contributing to performance characteristics; front apron with extremely large air intakes for the engine and brakes; athletically flared wheel arches to emphasise wide track; hallmark M "gills" with integrated indicator bars; aerodynamically optimised rear apron with diffuser between the right and left-hand pair of twin exhaust tailpipes; gurney-style rear spoiler on the boot lid; 19-inch M light-alloy wheels in exclusive double-spoke design.

- Unique combination of sports car cockpit and luxurious ambience for the interior; M-specific instrument cluster in black-panel technology; newly designed, leather-covered centre console; M sports seats; standard specification also includes: Merino leather upholstery with extended features, exclusive aluminium Trace interior trim strips, BMW Individual roof liner in anthracite, electrically operated steering column adjustment, four-zone automatic climate control and ambient light.

- Extensive range of driver assistance systems and mobility services from BMW ConnectedDrive unmatched by competitors in this segment and beyond: M-specific Head-Up Display (standard), Adaptive Headlights for standard xenon light, High-Beam Assistant, BMW Night Vision with pedestrian detection, Lane Change Warning System, Lane Departure Warning System, Surround View, Speed Limit Info, internet usage, extended integration of smartphones and music players, real-time traffic information and apps for receiving web radio and using Facebook and Twitter.

- Almost all BMW 5 Series Sedan equipment options available, including Comfort Access, M multifunction seats, active seats, doors with Soft Close Automatic function, hands-free tailgate opening, electric glass roof, trailer coupling.

- Specifications and performance:
  BMW M5: V8 petrol engine, M TwinPower Turbo technology with Twin Scroll Twin Turbo, cross-bank exhaust manifold, High Precision Direct Injection and VALVETRONIC variable valve control.
  Displacement: 4,395 cc, output: 412 kW/560 hp at 6,000 – 7,000 rpm, max. torque: 680 Nm (502 lb-ft) at 1,500 – 5,750 rpm.
  Acceleration 0–100 km/h (62 mph): 4.4 seconds,
  acceleration 0–200 km/h (124 mph): 13.0 seconds,
  top speed: 250 km/h / 155 mph (305 km/h / 190 mph with M Driver's Package).
  Average fuel consumption: 9.9 litres/100 kilometres (28.5 mpg imp), CO_2 emissions: 232 g/km, exhaust standard: EU5.

4. BMW i3 Concept and BMW i8 Concept.

BMW i is about the development of visionary vehicles and mobility services, inspiring design and a new understanding of premium that is strongly defined by sustainability. With BMW i the BMW Group is adopting an all-embracing approach, redefining the understanding of personal mobility with purpose-built vehicle concepts, a focus on sustainability throughout the value chain and a range of complementary mobility services.

Two special vehicle concepts.
The BMW i brand is now poised to enter the consciousness of the automotive public with two new vehicles. On the one hand there is the BMW i3 Concept. Previously known as the Megacity Vehicle, the BMW Group's first series-produced all-electric car focuses squarely on the mobility challenges in urban areas and, as the first premium electric vehicle, reinvents the hallmark BMW attributes for the future. Then comes the BMW i8 Concept, a sports car of the most contemporary variety – forward-looking, intelligent and innovative. Its unique plug-in hybrid solution brings together a combustion engine and an electric drive system to create an extraordinary driving experience complemented by extremely low fuel consumption and emissions.

BMW i3 Concept – dynamic, urban, emission-free.
The BMW i3 Concept is an uncompromisingly sustainable vehicle designed for urban areas. Driven purely by electric power and purpose-built to meet the demands of sustainable and emission-free mobility, it embodies an intelligent form of urban transportation and commuting.

The BMW i3 is a well-resolved all-round concept, with every detail conceived and optimised to fulfil its eventual purpose. Its innovative LifeDrive architecture renders the BMW i3 Concept light, safe, spacious and dynamic. Innovative use of materials and intelligent lightweight design, moreover, not only enable the i3 Concept to travel long distances on a single charge and provide superb safety in the event of a collision, they also help give the car its excellent driving dynamics. The electric motor over the rear

axle – which generates output of 125 kW/170 hp and impressive torque of 250 Nm (184 lb-ft) from a standstill – and a small turning circle combine to deliver pleasingly crisp driving characteristics. The BMW i3 Concept accelerates from 0 to 60 km/h (37 mph) in under four seconds and from rest to 100 km/h (62 mph) in less than eight seconds.

The so-called Life module conjures up a feeling of space inside the car more generous than even the latest conversion vehicles can offer. Select materials lend the open and airy cabin a lounge-like character. The use of renewable raw materials is another defining characteristic of the interior, offering passengers a further means of "experiencing" the sustainability of the vehicle. Parts of the instrument panel and door panelling are visibly made from natural fibres, while the naturally tanned leather of the seats creates a lounge-style ambience. With four seats, wide-opening opposing "coach" doors, a boot capacity of around 200 litres and an additional functional compartment in the front, the BMW i3 Concept is neatly equipped for the demands of everyday use.

Innovative connectivity functions create a seamless connection between the BMW i3 Concept and its customers' lives outside the car. Remote functions accessible via a smartphone enable owners to find their vehicles, flag up nearby charging stations, allow battery charging and preconditioning at the touch of a button, and supply information on the current status of the vehicle. Meanwhile, intelligent assistance systems ease the stress on drivers in monotonous city driving situations and allow them to arrive at their destination more safely and in a more relaxed state of mind.

BMW i8 Concept – emotional, dynamic and efficient.

The BMW i8 Concept and the fascinating approach that underpins it embody the vision of a sustainable contemporary sports car brought to life. Its innovative plug-in hybrid concept combines the modified electric drive system from the BMW i3 Concept – fitted over its front axle – with a high-performance three-cylinder combustion engine producing 164 kW/220 hp and 300 Nm (221 lb-ft) at the rear. Working in tandem, they allow the two drive systems to display their respective talents to the full, delivering the performance of a sports car but the fuel consumption of a small car.

Acceleration of 0 to 100 km/h (62 mph) in under five seconds combined with fuel consumption in the European cycle of under three litres per 100 kilometres (approx. 94 mpg imp) are figures currently beyond the capability of any vehicle powered by a combustion engine of comparable performance. Thanks to its large lithium-ion battery, which can be charged from a domestic power supply, the BMW i8 Concept can travel up to 35 kilometres (approx. 20 miles) on electric power alone. Added to which, the 2+2-seater offers enough space for four people, giving it a high level of everyday practicality.

The LifeDrive architecture of the BMW i8 Concept has been carefully adapted to enhance the vehicle's sports car character, and therefore to deliver unbeatable performance and excellent driving dynamics. The motor in the front axle module and combustion engine at the rear are connected by an "energy tunnel", which houses the high-voltage battery. This gives the car a low centre of gravity – and the dynamic benefits that come with it. The positioning of the electric motor and engine over their respective axles and the space-saving and well-balanced packaging of all components result in an optimum 50/50 weight distribution.

The emotional design of the BMW i8 Concept ensures its qualities are clear for all to see. Its dynamic proportions give the BMW i8 Concept the appearance of surging forward before it even turns a wheel and lend visual form to its extraordinary performance.

The sporting character continues into the interior. Boasting a driver-focused environment unmatched by any BMW Group vehicle before it, the BMW i8 Concept immerses the driver fully in the unique driving experience. The BMW i8 Concept is the sports car for a new generation – pure, emotional and sustainable.

BMW i thinks beyond the vehicle.

An additional range of mobility services – which can also be used independently of the cars – will be an integral component of BMW i alongside the vehicles themselves. A totally new development in this area will be vehicle-independent mobility services. Here the focus is on solutions which will improve usage of existing parking spaces, as well as intelligent navigation systems with local information, intermodal route planning and premium car-

sharing. In addition to service packages developed in-house, the BMW Group is pursuing cooperations with partner companies as well as strategic capital investments with providers of mobility services. BMW i Ventures was established with this purpose in mind. The company aims to expand the product portfolio of BMW i over the long term with stakes in highly innovative service providers, such as MyCityWay and ParkatmyHouse.

Purpose-built design – the LifeDrive concept.

Unlike the “conversion” approach applied up to now, which involves integrating electric components into vehicles originally designed to be powered by a combustion engine, the innovative LifeDrive architecture of the BMW i vehicles focuses directly on the technical requirements of the electric drive train. In this way the electric motor and the battery can be optimally accommodated and, in combination with intelligent lightweight design and innovative use of materials, the electrification of the vehicle can be achieved without having to carry out complex modifications and without adding weight. In this way, the LifeDrive architecture marries low overall weight for a maximised range with generous levels of space, supreme driving characteristics and high safety levels for the battery and passengers.

In contrast to vehicles with a self-supporting body, the LifeDrive concept essentially comprises two separate, independent functional units. The Drive module integrates the vehicle’s suspension, battery, drive system, and structural and crash functions into a construction made chiefly from aluminium. Its partner, the Life module, consists primarily of a high-strength and extremely lightweight passenger cell made from carbon fibre-reinforced plastic (CFRP). The use of this high-tech material across large sections of the car ensures that the Life module is remarkably light and, in so doing, helps to achieve both impressive range and improved performance. With this innovative concept the BMW Group has taken lightweight design, vehicle architecture and crash safety into a whole new dimension. Like the cockpit of a Formula One car, the CFRP passenger cell provides an extremely strong survival area. Pole impacts, side-on collisions and rollover tests highlight the impressive safety-enhancing properties of this extraordinarily robust material.

The LifeDrive architecture of the BMW i3 Concept.
Both the BMW i3 Concept and the BMW i8 Concept feature the LifeDrive architecture, but the geometric implementation of the concept differs in the two models, having been adapted to suit their different usages. The BMW i3 Concept features a horizontal-split variant of the LifeDrive concept. Here, the Drive module provides the solid foundations for the Life cell, which

is simply mounted on top. The reason for this functional rendition of the LifeDrive architecture is the large battery. In order to ensure the greatest possible electric range, the battery in the BMW i3 Concept is correspondingly large. The most space-efficient place to store the battery cells was in the car's underfloor section, where they occupy the whole of the module's central section, giving the car optimum weight distribution and a low centre of gravity. The battery is penned in by aluminium profiles, which protect it from external impacts. Crash-active structures in front and behind it provide the necessary energy absorption in the event of a front- or rear-end collision. The electric drive system is, as a whole, much more compact than a comparable combustion engine, cleverly accommodating the electric motor, gear assembly and drive electronics – in space-saving fashion – within a small area over the driven rear axle. The BMW i3 Concept therefore features the optimum LifeDrive architecture configuration for a purely electric vehicle.

The integration of all the drive components within the Drive module removes the need for a centre tunnel bisecting the interior, through which power would previously have been transferred to the rear wheels. The BMW i3 Concept therefore offers significantly more interior space than other vehicles with the same wheelbase and – through solutions such as a full-width seat bench – also allows the interior to be adapted extremely effectively to the needs of urban mobility. The BMW i3 Concept offers comfortable accommodation for four passengers and, with around 200 litres of boot space, room for their luggage as well.

The chassis of the BMW i3 Concept is also ideal for city driving. Its enviably small turning circle and direct steering responses are a recipe for outstanding agility, notably at low speeds.

The LifeDrive architecture of the BMW i8 Concept.
The BMW i8 Concept sees the LifeDrive architecture concept adapted to suit the vehicle's sports car character – i.e. primed to deliver leading performance and sharp dynamics. In a departure from the purely horizontal configuration favoured for the BMW i3 Concept, the LifeDrive architecture of its BMW i8 Concept sibling also features vertical layering. The drive systems powering the BMW i8 Concept are integrated into the front and rear axle modules, with the CFRP Life module providing the bridge between the two.

As a plug-in hybrid, the BMW i8 Concept is not designed purely for all-electric propulsion, and therefore carries fewer battery cells than the BMW i3 Concept. These are stored in the Life module inside the energy tunnel, a structure similar to a central transmission tunnel.

The front and rear axle modules therefore combine with the passenger cell and battery to form a functional unit, which adopts not only load-bearing responsibilities but also extensive crash functions. The location of the high-voltage battery in the energy tunnel gives the vehicle a low centre of gravity, and this enhances its dynamics. Together with the positioning of the motor and engine over the axles, the result is optimum 50/50 weight distribution. Intelligent lightweight design and the innovative use of materials produce extremely low unsprung and rotating masses, which is good news for the car's driving dynamics, acceleration, range and fuel economy. All in all, the BMW i8 Concept offers the ideal environment in which to experience the special drive concept and distinctive sports car character of the BMW i8 Concept on the road.

The axles are also designed to deliver optimum handling properties, in keeping with the car's sporting profile. Thus the multi-link front axle makes for an extremely flat and aerodynamically efficient silhouette while also eliminating any drive forces which may otherwise affect the steering, ensuring optimum handling in every situation.

Two vehicles, two drive concepts.

The BMW i3 Concept and the BMW i8 Concept, with their highly innovative and efficient drive systems, demonstrate how future mobility can be both sustainable and dynamic. While the BMW i3 Concept is an all-electric vehicle and therefore optimally equipped for operation around town, the plug-in hybrid BMW i8 Concept combines its electric motor with an internal combustion engine to deliver a high level of performance.

All-electric – the BMW i3 Concept.
The electric motor of the BMW i3 Concept is designed primarily for operation in an urban environment, developing 125 kW/170 hp, with peak torque of 250 Nm (184 lb-ft). Typically of an electric motor, maximum torque is developed from standstill, in contrast to an internal combustion engine where torque increases with engine rpm. This makes the BMW i3 Concept highly agile and provides impressive acceleration. The BMW i3 Concept accomplishes 0-60 km/h (37 mph) in under four seconds and 0-100 km/h (62 mph) in under eight seconds.

At the same time the abundant torque is delivered over a very large rpm range, resulting in very smooth power delivery. The single-speed gearbox provides optimal power transmission to the rear wheels and accelerates the BMW i3 Concept to an electronically governed 150 km/h (93 mph) without loss of power. The electric drive also allows for deceleration by means of the accelerator pedal. After the driver eases up on the accelerator, the electric motor acts as a generator, converting the kinetic energy into electricity which is then fed back into the battery. Energy recuperation generates a braking effect which makes a significant contribution to vehicle deceleration.

A coasting facility makes this unique “single-pedal control” of acceleration and braking using just the accelerator even more user-friendly. When the driver eases off the pedal, the electric motor’s zero torque control keeps the drive train disconnected as long as the pedal is in this position. The vehicle now coasts without consuming power, driven by its own kinetic energy.

Compact and powerful – the electric motor.

The electric motor of the BMW i3 Concept not only offers attractive driveability; its innovative nature is particularly evident in the favourable power-to-size ratio. As a result of continuous development and refinement, the space requirements of the electric motor used in the BMW i3 Concept have been reduced by 40 per cent compared with the motor used in the MINI E. This compact drive unit is mounted over the rear axle, together with the power electronics, transmission and differential, and does not intrude into the interior. The power needed to drive the vehicle and to operate all other vehicle functions is supplied by specially developed lithium-ion battery cells. The BMW i3 Concept's battery system has undergone detailed optimisation which significantly reduces the extent to which external factors can influence the vehicle's power. Furthermore, an intelligent heating/cooling system keeps the battery at its optimal operating temperature at all times, which helps to significantly boost the performance and life expectancy of the cells.

The battery can be fully recharged in six hours at a standard power socket. If a high-speed charger is used, an 80 per cent charge can be achieved in just one hour.

Range extender increases the driving range.

As the MINI E field tests showed, 90 per cent of the mobility requirements of the pilot users could be met with the range of the MINI E. However, some customers want a longer driving range, or want their vehicle to be as flexible as possible. The BMW i3 Concept therefore offers an optional range extender, the REx, which allows the driving range to be increased. REx, a small, very smooth-running and quiet petrol engine, drives a generator which maintains the battery charge level to ensure that the vehicle can continue to run on electric power.

Best of both worlds – the BMW i8 Concept.

The i8 Concept combines the advantages of two different drive systems. As a plug-in hybrid it reaps the benefits of an electric motor and an internal combustion engine for maximum efficiency with maximum dynamics. At the front axle is the electric motor adopted from the BMW i3 Concept and modified for use in the BMW i8 Concept's hybrid power train, while a 164 kW/220 hp turbocharged three-cylinder petrol engine developing up to

300 Nm (221 lb-ft) of torque drives the rear axle. Together, the two drive units take the vehicle to a governed top speed of 250 km/h (155 mph). Like the electric motor, the 1.5-litre three-cylinder petrol engine was developed entirely in-house by the BMW Group and represents the latest state of the art in conventional engine design. Acceleration of 0 to 100 km/h (62 mph) in under five seconds combined with fuel consumption in the European cycle of under three litres per 100 kilometres (approx. 94 mpg imp) are figures currently beyond the capability of any vehicle powered by a combustion engine of comparable performance. Depending on charging habits and the nature of the route, it is even possible to improve on these figures.

The hybrid concept means that the BMW i8 Concept can also run purely on electric power. The energy supplied by the application-designed battery system installed between the front and rear axle modules to the electric motor at the front axle gives the BMW i8 Concept an all-electric driving range of approximately 35 kilometres (20 miles). The battery can be fully recharged in two hours at a standard power socket.

Driving dynamics.

Thanks to the two drive systems, all four wheels of the BMW i8 Concept can be driven at the same time, similarly to an all-wheel-drive vehicle. This solution combines the advantages of front-wheel drive, rear-wheel drive and all-wheel drive to ensure the optimal dynamic drive configuration as required. Depending on traction conditions and driving situation, intelligent dynamic driving systems ensure maximum energy recuperation without compromising dynamics and stability. This allows very high levels of energy recuperation even in the wet or in snow.

Inspirational design.

BMW i embodies the creation of visionary vehicles and a new understanding of premium mobility underpinned by sustainability. This can be seen and experienced in the inspirational design of BMW i vehicles. The task for the designers was to develop a unique design language which would reflect the BMW i claim and brand values and include scope for expansion, but which would also maintain a strong link to its parent brand. The aim was to create an authentic visual representation of innovative technology and to translate values such as lightness, safety and efficiency into the BMW i3 Concept and BMW i8 Concept models. These basic values are expressed on the one hand in the design of the vehicles through features including large transparent surfaces and a light-bathed interior, a powerful stance and aerodynamic additions such as contact surfaces, spoiler lips and elements allowing air through-flow. The BMW i3 Concept and BMW i8 Concept also blend in their own interpretation of familiar BMW design features, cementing a clear link to the BMW parent brand.

The design language of the BMW i concept cars.

Exterior design.

The most defining element of the BMW i models is their purpose-built basic construction, the LifeDrive architecture. Within this concept, the CFRP Life module houses the passenger compartment, while the Drive module brings together all the operational driving functions. This distinctive two-way split is also reflected in the design of the cars. The modules are partly covered by side panels, but remain clearly distinguishable. Expressive surfaces and precise lines form a harmonious transition between the two. This overlap and interlocking of surfaces and lines – “layering” in BMW i speak – marks out the exterior and interior design of both vehicles. Here, the different functions of the layers are colour-coded for greater emphasis. The silver layer makes up the outward-facing level, while the black layer of the exterior contains the windows, basic structure and supporting elements. In between, surfaces add high-quality touches. The perceptible difference in height between the layers lends the exterior an extremely dynamic, three-dimensional appearance.

The Life modules of both concept cars come across as bright and open thanks to their large, transparent surfaces. This high degree of transparency imbues them with an airy feel and – together with the generous portions of exposed CFRP on display – reflect the lightness and efficiency of both vehicles.

Aerodynamics and design.

Aerodynamics are an important element of efficient mobility and therefore of BMW i, and they are deliberately reflected in the exterior design of the two concept models. The aerodynamically optimised "stream flow" is one of the most striking styling cues of the BMW i vehicles. Like air streams in a wind tunnel, two horizontal lines run towards each other from the top and bottom of the car to meet in the C-pillar in the shape of a dynamic stroke. The special three-dimensional form of the stream flow on the BMW i8 Concept, moreover, improves its aerodynamic efficiency. The underbody of the two vehicles, meanwhile, is totally enclosed and has a smooth surface to counteract the under-car turbulence that would otherwise push up fuel consumption. Other aerodynamic elements include the AirCurtains, which ensure optimum air flow around the wheel arches, and the aeroflaps in the door sill area behind the front wheels. Both solutions reduce the cars' drag substantially, and in so doing increase their efficiency – and therefore their range when running on electric power alone.

Bringing the outside in – layering and free forms in the interior.

As with the exterior, three different levels define the interior as well, allowing a range of functions to operate and shaping the way in which they do so. The outer level – the white layer – forms the supporting structure for all interior geometries. The inner layer is the function-oriented level and opens up features such as seat surfaces and storage areas. The instrument panel includes an additional black level between the inner and outer layer, which incorporates the technical components. This technical layer runs through the whole front section of the interior and also creates a visual link between the instrument panel, steering column and steering wheel (including instrument cluster), central information display (CID) and controls. Positioned here are features including the openings for the air vents, while the displays and radio/climate control panel also develop out of this layer.

Exterior and interior united.

The colours and materials concept creates an effective link between the vehicles – and between their exteriors and interiors. The dominant colours of the exterior are the Silver Flow shade of light silver and High-gloss Black. The slightly blue-tinged, bright silver colour tone shows off the vehicles' technical, modern exterior design extremely effectively and presents a clear contrast against the black-painted surfaces. Contrasting touches in bright, forceful Stream Blue bring the efficiency of the vehicles (inside and out) stylistically to life. Externally this colour can also be found in the logo, the kidney grille, door sills and rear apron. Together the various shades produce an extremely high-class exterior impression, maximising the impact of high-gloss surfaces and the contrast of black, silver and blue. The glass surfaces highlight this further.

Applied more discreetly in the interior, Stream Blue glows subtly from the logo in the steering wheel, the seat stitching, and between the leather surfaces and structural layers of the steering wheel, as well as from the indicators and displays. The colours of the interior paint a far warmer picture and therefore create a pleasant contrast to the technical cool of the exterior. The shell layer structures in Porcelain White and the warm dark brown leather colour tone Mocha Brown conjure up a modern yet cosy ambience.

Sustainability in the interior.

A stand-out feature of both interiors is the visible use, for the first time, of renewable and naturally treated raw materials. The BMW i3 Concept sets new benchmarks in the use of sustainable materials. In addition to the extensive use of natural fibres and naturally tanned leather, 25 per cent of the weight of the interior plastic is accounted for by recycled or renewable raw materials.

BMW i3 Concept – compact, agile, sustainable.

The proportions – dynamic, compact.

The design of the BMW i3 Concept reveals the car's qualities the first time you set eyes on it. The BMW i3 Concept represents the dynamic interpretation of an impressively practical vehicle.

Agile and compact proportions showcase the agility of the BMW i3 Concept and the dynamic prowess of its electric drive system. From the side view, the

window graphics and door sills combine to create a dynamic wedge shape, giving the car the feeling of pushing forward before it even turns a wheel. From the outside, a flowing silhouette and long wheelbase hint at the extraordinarily generous levels of space on offer in the interior, while short front and rear overhangs make parking in tight spaces that much easier. Practicality gets another boost from the "coach doors", whose opposing construction creates a fresh new way of accessing the large, open spaces of the interior.

Extensive glass surfaces and black elements like the window surrounds and door sills give the vehicle a feeling of lightness and, together with the exposed carbon structures, draw attention to its low weight. Large, narrow 19-inch wheels add further impact to the dynamic side profile.

The striking front end.
The front end of the BMW i3 Concept has a very clear and uncluttered design. The dominant element here is the strikingly moulded kidney grille, which has the hallmark BMW i blue background and – thanks to the car's all-electric drive system – is totally blanked off. Below the kidney grille, the silver-coloured layer lends the sculptural front apron its form. Black surfaces identify the functional areas of the front end, such as the load compartment under the bonnet and the air inlets.

Clearly defined AirCurtains also lend visible expression to the honed aerodynamics of this BMW i model. The eye-catching LED headlights usher in a fresh take on BMW light design. Along with the strikingly formed kidney grille, the LED-backlit U-shaped lines form an important part of the arresting new BMW i face.

The functional rear end.
The rear end of the BMW i3 Concept represents a microcosm of the car's impressive functionality overall. The large, retractable rear window offers optimum access to the luggage compartment, and the roof pillars stand upright to create as much space as possible in the interior. The rear window is also home to the tail lights, which are U-shaped (like the headlights) and appear to be floating in the glass. Behind it lies an extremely versatile boot area, whose capacity can be further increased by folding down the rear seats.

The wide, silver-coloured rear diffuser marks the body's lowest edge and allows the driver to experience the car's efficient aerodynamics. Bordered by a blue layer, the diffuser tapers heavily towards the road and appears to continue underneath the car. The form of the diffuser underlines the car's powerful stance. A sportier version can be found on the BMW i8 Concept, forging a link between the two models.

Self-supporting and light – the interior.

The version of the LifeDrive architecture that underlies the BMW i3 Concept opens up totally new avenues in interior design. There is no centre tunnel bisecting the cabin, and the interior thus creates a very free, open and airy impression.

The passengers sit in a raised "semi-command" position which provides a good view over the hustle and bustle of city traffic and, at the same time, eases access to the seats.

The full-width seat benches in the front and rear create a new and connecting feeling of space for the passengers in the light interior. This layout also allows them to swap from one side of the car to the other and, if necessary, to all climb out of the car comfortably on the same side. This represents a major boost to comfort in tight parking spaces and when access to one side of the parked car is impeded.

A distinctive element of the light interior is the freestanding steering column. All the driving-oriented controls – such as the instrument cluster, start/stop button and gearshift lever – can be found here, rendering a centre console superfluous. Behind the steering column the extremely intricate yet extensive instrument panel spans the interior. It begins at the air vents next to the steering wheel, continues in a line around the steering column, includes the radio and climate controls, and continues on its path to the front passenger. Shortly before the front passenger door it then shears upwards, heads back towards the centre of the interior and reaches the end of its journey in the central information display (CID) monitor positioned above the control panel for the radio and climate system. Around the displays, by contrast, the instrument panel generates an almost calligraphic surface design in which one large, wide surface sweeps prominently into a narrower and more delicate counterpart, before culminating in another wide section. The CID and control

unit therefore present an attractive contrast to the clear, precise borders of the instrument panel.

The area around the instrument panel, the doors and the floor area of the BMW i3 Concept also features contrasting materials. The natural origins of the high-strength dark anthracite material made from compressed and coated plant fibres are clearly evident and showcase the light, high-quality and beautifully crafted elements of the interior to optimum effect.

Interface design.

Connectivity – the linking up of the driver and passengers with the outside world and information superhighway – plays an important role in the BMW i3 Concept. Three large displays act as interfaces between the vehicle and the outside world. The 6.5-inch (16.5 cm) instrument cluster, meanwhile, emerges out of the steering column directly in front of the driver. Its freestanding design generates a very free and open feel around and above the driver's head. Meanwhile, the central 8.8-inch (22.4 cm) information display (CID) curves out of the black technical layer of the instrument panel's upper section towards the passengers. It blends seamlessly into the black surrounds, creating a very high-quality, continuous black surface which makes the display appear even larger. Below, the likewise unbroken black audio/climate control panel shares the form of the CID. Like the CID, the homogeneous touch-control surface curves towards the passengers and uses another screen to show additional information relating to the content on the central information display.

On another level, the highly technical-looking display graphics of the instrument cluster and CID lend visual form to the BMW i3 Concept's electric drive philosophy. All the information is displayed in the high quality and visually appealing fashion you would expect from BMW. Although the relationship of the i3 Concept to the parent brand is clearly evident again here, a very distinctive graphics profile has been created for BMW i with the emphasis on an individual and minimalist approach.

Efficient and dynamic – the BMW i8 Concept

The design of the BMW i8 Concept is as special as the car's overall concept, embodying the perfect synthesis of technology and aesthetic allure. Its sweeping lines and flat silhouette lend the vehicle a strikingly dynamic appearance even when standing still. A large, transparent greenhouse lends the exterior an extraordinary feeling of lightness and highlights the exceptional efficiency of this vehicle concept. Short front and rear overhangs round off the sporting overall impression. Despite its dynamic appearance, the 2+2-seater can accommodate four people, giving it a high degree of everyday practicality. As with the BMW i3 Concept, layering again serves as the central design element of the interior and exterior. The individual vehicle components are also clearly visible from the outside, the black and transparent Life module clearly setting itself apart from the silver-coloured body components around it. This layering approach lends the BMW i8 Concept an extremely technical and cutting-edge appeal.

Dynamic side view.

Taut surfaces and precise edges form an extremely sculptural and organic surface structure. The precise lines along its flanks and hallmark BMW i "stream flow" also give the BMW i8 Concept a strong sense of powering forward even when it is standing still. The BMW i8 Concept's doors swing upwards like wings to provide an undeniably emotional and sporting allure. Below the doors, the silver-coloured layer moulds the car's flanks into a powerful wedge shape, opening out from the door sills towards the rear. A blue flourish accentuates the dynamic presence of the sills. Together, the bonnet and door sill sculpting emphasise the BMW i8 Concept's forward-surging stance, and their smooth lines imbue the car with a touch of lightness.

Striking front end.

The BMW i8 Concept also displays its dynamic sports car persona when viewed from the front. A number of different levels interact with one another in the design of the front end, while the expressive surface treatment exudes dynamic verve and advertises the car's sporting potential. The full-LED headlights of the BMW i8 Concept are designed as two U-shaped configurations.

A black, semi-transparent “V” rises out of the bonnet just behind the kidney grille, opening out towards the windscreen and guiding the eye to the electric motor below. The “V” also offers the first glimpse of the CFRP module and extends back towards the rear like a black band to provide a visual connection between the different sections of the car.

Sporty rear end.

Similarly to the front end, the rear of the car is also very low, horizontal and sculptural in design. The silver-coloured side sections form a striking vertical frame around the rear of the car, with a precise line extending out to the sides enjoying particular prominence. In its centre the silver-coloured and blue-framed rear diffuser is a wider and lower interpretation of the version on the BMW i3 Concept, adding a distinct sporting flavour to its relationship with its stablemate.

At the rear, the car’s exceptional sporting credentials are also expressed in width-accentuating lines, three-dimensional air outlets and “floating” tail lights with air through-flow. The tail lights, which also have a distinct horizontal design, are integrated into the upper layer of the rear and share the signature U-shape of the BMW i light concept.

Purpose-built interior.

The transparent surfaces in the doors and roof give the exterior and interior design of the BMW i8 Concept the appearance of merging into one another. The colour concept and underlying structure of the BMW i8 Concept interior closely mimic those of the BMW i3 Concept. Here again, the Porcelain White support structure, black technical level and comfort section with Mocha Brown leather are split into three different layers. The arrangement of the air vents, control panels and displays also betrays the car’s family ties to its BMW i3 Concept sibling.

Overall, however, these features have a more sporting character and are geared much more clearly towards the driver. Indeed, a level of driver focus beyond that of any BMW Group vehicle before it allows the BMW i8 Concept to immerse the driver fully in the unique experience behind the wheel. Driver-relevant functions such as the gearshift lever, start-stop button and parking brake are arranged around the driver on the centre console and are graphically strongly geared towards the driving seat as well. The three-

dimensional displays are extremely clear and flash up the relevant information for the driving situation at hand. At the same time, occupants in the BMW i8 Concept sit in a highly integrated position low down in the car and are separated by the battery running lengthways through the interior. This longitudinal bisection of the cabin underlines the sporting and forward-looking character of the BMW i8 Concept interior.

Optimum information.

The 8.8-inch (22.4 cm) freestanding information display in the dash is joined by an equally large display taking the role of the instrument cluster. Indeed, its high-quality presentation in the binnacle makes it look far larger. Designing the central instruments in this way enables driver-relevant information to be conveyed in a three-dimensional and high-resolution format. In keeping with BMW i style, the displays are premium, modern and purist. Depending on the driving mode, the two drive systems are depicted by a pair of ellipses, which supply information on their operation at any given time. Other information – such as the available range and fuel level – can be found here, too.

BMW i and sustainability.

Sustainability has played a defining role in the BMW Group's strategy and operations ever since the early 1970s. Since that time, many production processes have been optimised and many innovative technology packages incorporated into the company's vehicles, which have significantly reduced emissions both during the manufacturing process and during the useful life of the vehicle. But sustainability is not confined solely to environmental issues. The BMW Group addresses all three dimensions of sustainability: environmental, economic and social. Just how successful the BMW Group has been in its actions to promote sustainability is clear not least from its position in the Dow Jones Sustainability Index: in 2010 the BMW Group headed this ranking list for the sixth time running, making it the most sustainable company in the automotive sector.

Integrated perspective.

For BMW i, sustainability is of pivotal importance and something it aspires to throughout the entire value chain. From the earliest strategic and planning stages, therefore, clearly defined sustainability targets were set for the BMW i vehicles. All three sustainability aspects were addressed across the entire spectrum, from purchasing, development and production to sales and marketing.

The BMW i3 Concept proves beyond doubt how successfully these sustainability targets were achieved. The life cycle global warming potential (CO_{2e}) of the BMW i3 Concept, assuming a European electricity mix (EU 25), is at least a third lower than for a highly efficient combustion-engined vehicle in the same segment. If the vehicle is powered by renewable electricity, the improvement increases to well over 50 per cent. This is reflected in a large number of innovative measures relating to the development, production and recycling stage. Some of these solutions were developed by suppliers. In this way BMW i is setting new standards of sustainability across the entire value chain.

Sustainability in the development process.

With its innovative LifeDrive architecture and extensive use of intelligent lightweight design, the BMW i3 Concept is purpose-built for electric mobility. This enables an extended driving range and even more efficient zero-emission electric operation – in other words, more miles per kilowatt of electricity. At the same time, sustainability is also reflected in the high-class interior, where for the first time the use of renewable materials is clearly visible.

The BMW i3 Concept also has a high recycled material content: 25 per cent of the thermoplastic components by weight have been replaced by recycled and renewable materials, while 10 per cent of the CFRP in the Life module are likewise recycled. The use of recycled CFRP in this form is currently unique.

Sustainable production.

The BMW Group has for a long time been investing huge efforts in developing a sustainable production system. In the manufacture of its BMW i vehicles the company will be going even further. Compared with the already highly efficient BMW Group production network, the future production plant for BMW i vehicles – Leipzig – will achieve additional 70 per cent savings on water consumption and 50 per cent savings on energy consumption per vehicle produced. Furthermore, 100 per cent of the energy used in production of the BMW i will be renewable.

Sustainable purchasing.

Further opportunity for reducing global warming potential across the entire product lifecycle can be achieved through a carefully focused purchasing strategy for the lightweight materials aluminium and CFRP. Using aluminium produced from 100 per cent renewable energy, also known as secondary aluminium, can achieve savings of 50 to 80 per cent of CO_{2e} compared with a conventional manufacturing process. More than 80 per cent of the aluminium used in the BMW i3 Concept is thus produced either using renewable energy or from secondary material. In CFRP manufacturing, too, BMW i always uses the most eco-friendly processes. The CFRP produced by our joint venture partner at the Moses Lake plant (USA) is made using electricity generated

entirely from renewable hydroelectric power. BMW i suppliers must likewise demonstrate that their business practices are sustainable.

Recycling as the norm.

All BMW i processes conform to the principles of closed-loop material recycling and waste avoidance. End-to-end recycling saves resources and conserves raw materials for future use. Another priority for the development team is to ensure that all structures and processes are designed to facilitate component reuse and material and energy recycling.

Social sustainability at BMW i.

Just like the environmental and economic aspects of sustainability, the social aspects too were taken into account at an early stage in product development and design. Here BMW i is building on the existing very high standards of the BMW Group and is systematically reinforcing its commitment to three key issues: responsibility for employees today and in the future, commitment to ethical standards in the supply chain, and social responsibility.

BMW i – visionary mobility and mobility services.

BMW i stands for a new approach to premium mobility. This mobility concept is geared to the demands of the future and to the needs of users, and it systematically addresses these challenges today. The new generation of vehicles calls for a new generation of driver assistance systems that significantly boost active safety and convenience.

Proactive Front Protection.

For that reason the camera-based proactive Front Protection system, offered in both vehicles, provides active safety which helps to prevent accidents or mitigate injuries. The system, which operates across the entire speed range, can detect a collision risk with preceding vehicles and warns the driver in good time, so that he can sharply reduce his speed and, if possible, still avoid an accident. In the speed range from 0 to 60 km/h (37 mph) the system can now also detect pedestrians, and in addition to warning the driver it also assists by performing automatic emergency braking.

Driver assistance systems for urban driving – Parking Assistant and Traffic Jam Assistant.

Since the BMW i3 Concept is designed mainly for urban operation, the vehicle features two further driver assistance systems – the Parking Assistant and the Traffic Jam Assistant. The Parking Assistant now relieves the driver of the entire parking manoeuvre, performing acceleration and braking automatically. If multiple manoeuvres are required, the vehicle can also switch between forward and reverse direction without the driver's intervention.

The Traffic Jam Assistant, on the other hand, makes driving less stressful under monotonous road conditions. By letting the vehicle "go with the flow", it allows the driver to get to his destination in a more relaxed state of mind. The Traffic Jam Assistant maintains a specified following distance from the vehicle in front, and in particularly heavy traffic can autonomously control the speed of the vehicle right down to a standstill while providing active steering input. This enables the vehicle to help the driver stay on course right up to a speed of 40 km/h (25 mph) – provided he keeps at least one hand on the steering wheel.

The BMW i remote functions.

In addition to these driver assistance systems, application-based remote functions allow the car to be accessed using a smartphone. As well as familiar functions such as remote locking and unlocking, CarFinder and Google Local Search, the driver can also draw on new features designed specifically for electric vehicles, such as remote-controlled charging and remote-controlled thermal preconditioning of the battery pack and vehicle interior. Remote-controlled charging allows the user to start the charging process at a time that can be determined by setting the journey start time. This function also allows the user to check the battery charge status at any time. Then there is the intelligent thermal preconditioning system, which allows the driver to bring both the battery pack and the vehicle interior to the optimal operating temperature before the start of the journey. There are two advantages to starting the journey with a preconditioned vehicle. Firstly, ensuring that the battery pack is at its optimal operating temperature right from the start maximises battery power and driving range, and secondly the driver can enjoy pleasant temperatures in the interior from the outset of the journey, both in summer and in winter.

Optimal efficiency and comfort – ECO PRO mode and ECO PRO + mode.

In both the BMW i3 Concept and the BMW i8 Concept, ECO PRO mode allows the driver to increase the electric driving range of the vehicle and reduce power consumption at the press of a button. In ECO PRO mode the drive settings and those of the convenience systems are adjusted for even more efficient operation.

Moreover, with ECO PRO + mode the BMW i3 Concept engages a drive mode uncompromisingly geared to maximising the driving range if, due to unforeseen circumstances such as a prolonged traffic hold-up, the electric driving range is shortened to the point where the driver can no longer be sure of reaching his destination. In this mode the main electrically powered convenience functions such as the air conditioning and heating systems are as far as possible deactivated, and auxiliary power consumers such as the heated seats and heated mirrors are shut down altogether. However, the systems continue running with minimal functionality, so that safety inside and

outside the vehicle is in no way compromised. For example, the window demisting function remains operational to maintain clear visibility in winter.

Treading new paths – navigation by BMW i.

The two navigation modes "Last Mile Navigation" and "Intermodal Route Planning" are designed particularly with urban environments in mind. Last Mile Navigation continues to navigate the driver even after he gets out of the vehicle, by sending instructions to his smartphone which will direct him quickly and reliably on the "last lap", for example from the car park to the museum entrance. And when the driver is ready to head back, he can quickly locate his parked vehicle using the CarFinder function. Intermodal Route Planning summarises the various options of getting to a given destination by car and public transport. This BMW Group system integrates the vehicle, the different modes of local public transport and information about current parking availability.

In addition, intelligent navigation functions in the BMW i8 Concept enable optimal energy management in the vehicle, thereby significantly reducing fuel consumption. As soon as a destination is entered into the navigation system, the vehicle calculates the best way to manage the energy consumption of the two power units along the route. On different sections of the route, the vehicle characteristics can then be modified so that the drive units are managed either for maximum efficiency or for optimal performance.

BMW i mobility services.

As well as the vehicles themselves, BMW i also stands for comprehensive and custom-designed mobility services which can optimise personal mobility even for customers who do not own their own vehicle. These mobility services focus, for example, on solutions that make more efficient use of existing parking space, intelligent navigation systems that can also offer location-based information, an Intermodal Route Planning service and the "DriveNow" premium car-sharing service. What all these services have in common is that they are designed to help users reach their destination sooner, more reliably and more conveniently. To this end, BMW i offers an integrated range of services which can be implemented individually and with immediate effect.

DriveNow – the first premium car-sharing service.

Starting in June 2011, the DriveNow joint venture between the BMW Group and Sixt AG is offering a state-of-the-art mobility service, initially in Munich, whose key features include high-efficiency premium vehicles and an extensive range of services. The special highlight of this service is that vehicles do not have to be picked up from and returned to specific locations but can be hired and left wherever the customer wishes. This clearly differentiates DriveNow from competitor products. Customers can check vehicle availability either on the internet, via a smartphone app or simply when passing by on the street. Conventional car keys are not required either, since the DriveNow vehicles can be unlocked by means of a chip inserted in the driver's licence and started using a starter button. Following Munich, further major European cities will get this service later in the year. In the longer term, there are also plans to extend this car-sharing service to other continents as well.

BMW i Ventures.

In addition to developing and offering its own services, the BMW Group also provides services in partnership with other companies and makes strategic investments in mobility service providers. With this in mind, BMW i Ventures is providing backing for new, promising start-up companies, ensuring that development work on high-potential innovations continues and that these developments can eventually be put to use. MyCityWay and ParkatmyHouse are the first two start-ups in which BMW i Ventures has invested. MyCityWay is a mobile app that provides users with information on public transport, parking availability and local entertainment for over 50 cities in the USA, Canada, Europe and Asia. Using the ParkatmyHouse internet platform, on the other hand, private individuals can rent out their driveway or private parking space on an occasional or permanent basis. This dedicated parking management service makes private parking spaces affordable and takes the pressure off on-street parking.

With its car-independent mobility services and systematic promotion of innovation, BMW has paved the way for a comprehensive and innovative mobility experience. And it doesn't stop there: at the same time the BMW Group is also working to intelligently integrate these various services.

Specifications.
BMW i3 Concept.

Length/Height/Width	L 3845 mm, H 1537 mm, W 2011 mm
Wheelbase	2570 mm
No. of seats	4
Kerb weight	1250 kg
Output	125 kW / 250 Nm
Top speed	150 km/h / 93 mph
Acceleration	0-60 km/h / 37 mph 3.9 s 0-100 km/h / 62 mph 7.9 s
Electric range	Everyday range: 130-160 km / 80-100 miles
Battery charge time	Standard: 6 h for 100% charge
Luggage compartment	approx. 200 litres

BMW i8 Concept.

Length/Height/Width	L 4632 mm, H 1280 mm, W 1955 mm
Wheelbase	2800 mm
No. of seats	2 + (2)
Kerb weight	1480 kg
Output	260 kW /550 Nm system output of which petrol engine: 164 kW / 300 Nm
Top speed	250 km/h / 155 mph governed
Acceleration	0-100 km/h / 62 mph 4.6 s
Fuel consumption (EU cycle):	2.7 l/100 km / 104 mpg imp (66 g CO_2)
Electric range	approx. 35 km / 20 miles
Battery charge time	Standard: 1:45 h for 100% charge
Luggage compartment	approx. 150 litres