



### **BMW X5 xDrive35d AND BMW 335d TO MAKE US DEBUT BMW Advanced Diesel with BluePerformance. Performance + Outstanding Efficiency**

**Woodcliff Lake, NJ – January 2, 2008...** Entering a new era in the company's mission to deliver ultimate driving machines that combine superior performance with exemplary fuel economy, the BMW Group will debut two vehicle models equipped with the BMW Advanced Diesel with BluePerformance at the 2008 North American International Auto Show (NAIAS) in Detroit – the X5 xDrive35d and the 335d.

Successfully meeting the strict exhaust emissions requirements of the North American automobile market, BMW Advanced Diesel – slated to hit US roadways in late 2008 – will be available in all 50 states. The wide availability of these vehicles marks a significant milestone in the BMW EfficientDynamics strategy, which seeks to offer customers in automobile markets around the world maximum driving pleasure with minimum fuel consumption and emissions.

BMW Advanced Diesel technology is being introduced into the US market in the form of the 3.0-liter inline-six featuring Variable Twin Turbo Technology – an engine widely acknowledged as the unchallenged benchmark for sporting performance, motoring refinement and superior efficiency in other markets around the world. At the 2008 NAIAS, BMW is presenting this 265-hp high-performance diesel engine in both the BMW X5 xDrive35d and the BMW 335d. To ensure full compliance with the demanding emission standards in California and other US states, BMW uses SCR technology to reduce nitric oxides (NO<sub>x</sub>), enabling nationwide introduction of BMW Advanced Diesel with BluePerformance as a 50-state model (BIN5).

#### **Leading the way: BMW diesel competence for the US.**

The history of BMW diesel engines began in 1983 when the BMW 524td was introduced as the fastest diesel in the world. From that starting point, BMW has spent 25 years continuously developing diesel technology. Today's BMW Diesels are characterized by dramatically improved power and performance,

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fuel consumption and emissions levels – reflecting the principle of BMW EfficientDynamics in every respect.

Through their superior motoring refinement alone, BMW diesel engines have helped to significantly eliminate any reservations regarding the acoustic properties of a diesel engine. Indeed, great demand for BMW diesel engines has helped BMW achieve increased market share not just in Europe, but in regions across the world. Today no less than 67 percent of all new BMWs delivered to customers in Europe are powered by a diesel engine.

While diesel engines of today represent an impressive standard for fuel efficiency and emissions on the whole, BMW Advanced Diesel engines take this a step further, setting the standard for torque and pulling power that could never be achieved by a similar displacement gasoline engine – while consuming 25 percent less fuel on average than an equally powerful gasoline engine.

**New generation of diesel technology:**

**Maximum dynamism, minimum emissions.**

Maximum power, supreme efficiency: The first BMW Advanced Diesel with BluePerformance is particularly well-suited to combine the driving dynamics and motoring refinement of a premium automobile with the most current and demanding standards for preserving resources and reducing emissions. Featuring exceptional power and torque, the 3.0 liter inline-six diesel is one of the most fuel-efficient and economical engines in its class.

Applying Variable Twin Turbo Technology, a small turbocharger first cuts in at low engine speeds. Thanks to its low inertia, this turbocharger develops boost (and extra power) in response to even the smallest movement to the gas pedal and without the slightest delay. As engine speed increases, the second, larger turbocharger cuts in, developing maximum torque of 425 lb-ft at just 1,750 rpm. Interaction of the two turbochargers is controlled by the particularly efficient, high-performance electronic engine control unit.

In addition to the above Variable Twin Turbo Technology, new technical highlights of BMW Advanced Diesel – presented for the first time in 2007 – include an aluminum crankcase and third-generation common-rail direct fuel injection. Featuring precision-quality precise piezo-injectors to deliver the precise dosage of fuel into the combustion chambers with the smallest volume

of pre-injection, the third generation system ensures a particularly clean injection process with optimized fuel consumption, emissions figures and running smoothness.

Given all of these qualities, BMW's 3.0-liter diesel with Variable Twin Turbo has won the prestigious International Engine of the Year Award multiple times – more than any other prize or acknowledgement. The engine is featured in a large number of models in Europe and is now expanding its global story of success as the BMW Advanced Diesel with BluePerformance.

At the 2008 NAIAS, the BMW 335d featuring Advanced Diesel with BluePerformance for maximum output of 265 hp and peak torque of 425 lb-ft. will provide a clear and convincing demonstration of these qualities. On the road, this means acceleration from 0–62 mph in 6.2 seconds and average fuel economy of 23/33 mpg (city/highway, provisional data).

The BMW X5 xDrive35d, will also debut in Detroit. Like the 335d, the X5 xDrive35d offers sporting character through BMW Advanced Diesel with BluePerformance, while standing out as a high-torque Sports Activity Vehicle with excellent qualities for long-distance motoring. The BMW X5 xDrive35d accelerates from 0–62 mph in just 7.2 seconds and offers average fuel economy of at least 19/25 mpg (city/highway, provisional data).

**Non-partisan study in the USA:**

**BMW ranks No 1 in the reduction of CO<sub>2</sub> emissions.**

The introduction of Advanced Diesel with BluePerformance in the US continues the global BMW EfficientDynamics development strategy of reducing both fuel consumption and exhaust emissions. Applying this strategy, the vehicles offered by BMW stand out worldwide by combining a higher standard of driving dynamics with a significant reduction in both fuel consumption and emissions.

The new BMW 128i Coupe now being introduced in the US, for example, is powered by the latest and, accordingly, most efficient version of BMW's inline-six cylinder engine featuring VALVETRONIC technology. Apart from the enhanced version of this fully variable valve management, this engine also features a composite magnesium/aluminum crankcase and an electric coolant pump, operating only on demand and to the level required. In the BMW 128i Coupe, this engine is combined with six-speed automatic transmission of the

latest generation, again using innovative technology to ensure enhanced fuel economy, minimum emissions and maximum driving pleasure. Innovations allowing for greater efficiency are also being systematically introduced into all models sold by BMW in the US. Pursuing this strategy, BMW has indeed made significant progress in recent years in reducing average fuel consumption and CO<sub>2</sub> emissions, the success of these efforts being confirmed only recently in the latest issue of the US Environmental Defense Report. According to the study, BMW reduced the CO<sub>2</sub> emissions of its car fleet by 12.3 percent from 1990 through 2005 (its closest competitor achieved a 3 percent reduction in CO<sub>2</sub> emissions), while sales in the USA increased four-fold in the same period.

This independent, non-partisan study of the Vehicle Fleet Carbon Burden of all vehicles operating in the United States between 1990 and 2005 concluded that BMW has contributed far more than all other manufacturers in reducing fuel consumption and CO<sub>2</sub> emissions and makes specific reference to the positive results of BMW EfficientDynamics.

Now, introducing Advanced Diesel with BluePerformance as part of BMW EfficientDynamics, BMW seeks to continue the progress described in the Environmental Defense Report well into the future, with the same intensity and impact.

**Most advanced exhaust gas management:  
SCR catalyst with AdBlue injection.**

To optimize emission management, Advanced Diesel with BluePerformance incorporates an oxidation catalyst placed just downstream of the exhaust manifold, a diesel particulates filter housed in the same unit and an SCR catalyst with the urea injection. In addition to filtering out even the smallest particles from the flow of exhaust gases, this combination ensures effective reduction of nitric oxides (NO<sub>x</sub>) by way of a chemical reaction within the exhaust system initiated by the injection of a small dose of urea referred to as AdBlue. The ammonia (NH<sub>3</sub>) generated in this process within the SCR catalyst subsequently converts the nitric oxides (NO and, respectively, NO<sub>2</sub>) in the exhaust gas into environmentally compatible nitrogen (N<sub>2</sub>) and vapor (H<sub>2</sub>O).

**AdBlue technology by BMW:  
Optimized emissions without requiring additional maintenance.**

To introduce AdBlue technology into the car, BMW has developed a two-tank system ensuring convenient use of this new technology with all the benefits and ease required by the customer. The amount of AdBlue required in each case is injected from the active tank (approximately 1.6 gallons in volume) by means of a dosage pump. And since the urea solution would freeze at a temperature of 12.2°F, this active tank, as well as the dosage pipes, are heated.

The active tank is connected to a second reservoir, referred to as the passive tank. With its additional capacity of approximately 4.5 gallons, this passive tank offers a plentiful supply of the urea solution. The average range provided with this supply capacity is indeed sufficient to have the tank system replenished only when the driver needs to change the engine oil. Hence, the large amount of AdBlue stored in the reservoir enables the customer to enjoy continuous driving, without having to change his/her service intervals. The driver therefore benefits from the advantages of this environmentally friendly emission technology throughout the entire running life of the car, without any additional service or visits to the workshop. Since all BMWs sold in the US benefit from The BMW Maintenance Program, the refilling of the AdBlue tanks will be a no-charge service for 4 years or 50,000 miles.

AdBlue from the active tank is delivered to the dosing valve and atomize into the exhaust system. Consistent distribution of AdBlue within the flow of exhaust is ensured by the SCR mixer. The ammonia generated in the hot exhaust flow subsequently acts as a reduction agent in the SCR catalyst and converts environmentally harmful nitric oxides into nitrogen and water vapor in a process referred to as a selective catalytic reaction (SCR). This process gives the special SCR catalyst its name.

The control of the SCR system is masterminded by BMW's powerful engine management computer. A nitric oxide sensor downstream of the SCR catalyst provides feedback on the concentration of NO<sub>x</sub> in the exhaust emissions.

Due to packaging limitations in certain vehicles, the position and location of the AdBlue tank may be varied from one vehicle model to the other. In the BMW 335d, the active and passive tank are at the rear end of the car, while in the BMW X5 xDrive35d, the active tank is housed in the front right section of the engine compartment, and the passive tank is under-floor next to the transmission.

## **BMW's competence in diesel technology:**

### **A story of success since 1983.**

The performance and fuel economy offered by new BMW Advanced Diesel with BluePerformance is a further example of the exceptional potential this engine concept has to offer. In recent years BMW has worked more thoroughly and consistently than any other manufacturer worldwide to promote and further the development of its EfficientDynamics strategy. As a result, BMW has consistently enhanced the benefits and attractiveness of diesel technology, increasing engine output (performance), while reducing fuel consumption and emissions.

Through their unique motoring refinement and smoothness – a feature which was thought to be impossible with a diesel engine – BMW's diesel engines stand out among the competition, setting the industry standard for diesel engine technology today.

The story of success of BMW's diesel engines is characterized by numerous milestones in technical development, dating back to 1983. Back then BMW presented the first inline-six diesel in the history of the company, with maximum output of 85 kW/115 hp and peak torque of 210 Newton-metres/155 lb-ft.

The BMW 524td that featured this engine was acknowledged as the fastest diesel of its time and was the last BMW diesel model to be sold in the US.

In the years to come BMW's engine development specialists enhanced a wide range of innovations, ensuring their alignment with series production standards, increasing power and performance, reducing fuel consumption and emissions in the process. In 1987, for example, BMW introduced DDE Digital Diesel Electronics followed three years later by BMW's first diesel engine with an oxidation catalyst.

## **BMW diesel engines:**

### **Making a unique contribution to The Ultimate Driving Machine.**

Right from the start BMW's engine development specialists recognized the potential of the diesel in enhancing motoring efficiency. They focused on the unique performance characteristics offered by the diesel in order to provide a new concept of The Ultimate Driving Machine. Above all, the development

specialists used the performance of the diesel engine to develop superior torque from low engine speeds.

As a result, the BMW diesel was soon able to offer its unique sporting character – in everyday driving situations, as well as on the race track. Indeed, it was this performance and reliability which made a BMW 320d the superior winner of the 24 Hours of Nürburgring as early as in 1998.

In the same year BMW presented its first diesel engine with direct fuel injection ensuring even greater spontaneity in the development of power. In the process, the precise dosage of fuel helped to reduce fuel consumption and optimize combustion in the interest of even greater smoothness and refinement. Ultimately, given these qualities, the BMW diesel was appropriately prepared for the luxury performance class, with the first V8 diesel engine featuring direct fuel injection, which made its debut in the BMW 7 Series luxury sedan in 1999.

**Milestones in progress:**

**Common-rail direct fuel injection, Variable Twin Turbo Technology, maintenance-free diesel particulates filter, BluePerformance.**

In the years that followed, BMW made significant – perhaps revolutionary – progress in the areas of injection technology and diesel turbocharging: As early as 2001, the second generation of common-rail fuel injection pumped fuel into the combustion chambers at a pressure of up to 1,600 bar. In 2004, the BMW 535d became the first car to feature an inline-six diesel with Variable Twin Turbo Technology.

BMW also introduced the second generation of the diesel particulates filter now featured as standard in all of the diesel models from Germany's premium manufacturer. The exhaust gas-cleaning unit is positioned directly on the exhaust manifold itself in order to ensure optimum efficiency very quickly and smoothly. The particulates filter does not require any maintenance and regenerates itself by incinerating the diesel particles. This filtering function is performed at all engine speeds and under all loads, without any reduction of engine power or increase in fuel consumption.

BMW's current range comprises no less than seven diesel engines, three four-cylinder models, a six-cylinder model and a V8. Both the six- and four-cylinder engines have aluminum crankcases helping to significantly reduce the weight

of these engines. A traditional handicap of the diesel engine, which adds weight due to the use of a cast iron crankcase (a much heavier material than aluminium) has nearly been phased out completely. The reduction of weight enhances the car's agility and, as a result, the sporting character of BMW's diesel models.

Comparing the first six-cylinder BMW diesels from 1983 with the most powerful diesel engines of today, one can easily appreciate the progress made. Consider the following facts and figures:

Maximum output of the inline-six engine is up 135 percent, maximum torque is up an even more impressive 170 percent. And despite this immense increase in power and muscle, average fuel consumption of the 3.0-liter engine featuring Variable Twin Turbo Technology is 20 percent lower than diesel engines of 1983. At the same time, exhaust emissions have been reduced dramatically, thanks to several new technologies. Indeed, a BMW diesel in the 2008 model year generates only 1 percent of the particulate emissions originally contained in the exhaust gas of a 1983 diesel model.

**The world's most sporting inline-six diesel.**

**Ready for the USA.**

Despite these impressive facts and figures, BMW is continuing to upgrade the diesel engine to an even higher standard, and BMW Advanced Diesel with BluePerformance marks the next stage of development. This innovative technology now also fulfills US market demands in terms of power, performance, running smoothness, efficiency and emission limits.

Both the 335d and the X5 xDrive35d will be launched in all 50 US states in the fall of 2008. Pricing will be announced closer to launch time.

**BMW Group In America**

BMW of North America, LLC has been present in the United States since 1975. Rolls-Royce Motor Cars NA, LLC began distributing vehicles in 2003. The BMW Group in the United States has grown to include marketing, sales, and financial service organizations for the BMW brand of motor vehicles, including motorcycles, the MINI brand, and the Rolls-Royce brand of Motor Cars; DesignworksUSA, an industrial design firm in California;

a technology office in Silicon Valley and various other operations throughout the country. BMW Manufacturing Co., LLC in South Carolina is part of BMW Group's global manufacturing network and is the exclusive manufacturing plant for all Z4 models and X5 Sports Activity Vehicles and the upcoming X6 Sport Activity Coupe. The BMW Group sales organization is represented in the U.S. through networks of 338 BMW passenger car centers, 335 BMW Sports Activity Vehicle centers, 142 BMW motorcycle retailers, 82 MINI passenger car dealers, and 30 Rolls-Royce Motor Car dealers. BMW (US) Holding Corp., the BMW Group's sales headquarters for North, Central and South America, is located in Woodcliff Lake, New Jersey.

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