Media Information
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## BMW introduces first production ActiveHybrid vehicle.

2010 BMW ActiveHybrid X6 to premiere at Frankfurt Motor Show.

**Whitby, ON**. BMW announced today the launch of the production version of the BMW ActiveHybrid X6. The 2010 BMW ActiveHybrid X6 will make its world premiere at the Frankfurt Motor Show (IAA) in September and will reach Canadian BMW showrooms in late 2009.

The world's first Sports Activity Coupé with full hybrid drive capitalizes on the benefits offered by combining the combustion engine with electric motors, offering a significant increase in driving dynamics while reducing fuel consumption by approximately 20 percent versus a comparable vehicle powered by a combustion engine alone.

The overall drive system featured in the BMW ActiveHybrid X6 is comprised of a 400 hp twin-turbocharged V8 gasoline engine and two electric synchronous motors delivering 91 hp and 86 hp, respectively. Maximum system output is 480 hp, and peak torque reaches 575 lb-ft.

Precisely controlled interaction of the power units optimizes the overall efficiency of the BMW ActiveHybrid X6 at all speeds, with acceleration from a standstill to 100 km/h in 5.6 seconds (European figures). Average fuel consumption in the EU test cycle is improved by roughly 20%, and a CO2 emission rating of 231 grams per kilometer.

BMW's first full hybrid model is able to run exclusively on electric power – and that is entirely free of CO2 – up to a speed of 60 km/h, with the combustion engine being activated automatically whenever required.

These performance figures are made possible by utilizing a two-mode active transmission. The ideal combination of the two power modes can be controlled for enhanced efficiency and dynamic performance in any driving condition. With the two electric motors, three planetary gearsets and four multi-plate clutches, drive power is transmitted through a 7-speed automatic transmission. BMW's lauded xDrive all-wheel-drive system distributes the power between the front and rear axles.

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The electric motors receive their energy from an NiMH (nickel-metal hydride) high-performance battery pack positioned beneath the floor of the luggage compartment. As a result, cargo space is not compromised and luggage capacity remains the same as on the regular BMW X6. This battery pack also feeds electric power to the vehicle's on-board network. On brake application and/or on deceleration, kinetic energy is converted into electrical energy and is stored in the battery pack. To provide this function either one or both of the electric motors act as a generator, feeding electric power generated back into the high-voltage battery.

**Unique efficiency ensured by two-mode active transmission.**
The two-mode active transmission is based on an ECVT (electric continuously variable transmission) operating in two separate modes. One mode is for stop-and-go driving and low speeds, and the second is for driving at higher speeds.

From a stop and at low speeds, only one of the two electric motors is activated. As soon as the driver requires more power or increased speed, the second electric motor automatically starts the combustion engine. The second electric motor then serves as a generator to provide a supply of electric power to the vehicle systems. When driving steadily at a higher speed most of the power required is delivered by the combustion engine in a largely mechanical process. Here again, one of the two electric motors acts as a generator.

The mechanical components, including three planetary gearsets and the two electric motors, combine to provide seven total effective gears. This configuration manages the power generated by the combustion engine and two electric motors in a way that maximizes driving versatility.

**BMW TwinPower Turbo V8 gasoline engine with High Precision Direct Injection.**
The combustion engine is the innovative reverse-flow TwinPower Turbo V8 first featured in the BMW X6 xDrive50i. The world's first V8 gasoline engine with two turbochargers in the V-section between the two rows of cylinders develops power throughout the entire engine speed range. The spontaneous and direct response of this engine results from its compact configuration, which allows the shortest exhaust manifolds.

Displacing 4.4 liters, this outstanding engine delivers its maximum output of 400 hp between 5,500 and 6,400 rpm. Peak torque of 450 lb-ft is maintained from 1,750 to 4,500 rpm, with High Precision Direct Injection ensuring precise supply of fuel at all times. Piezo-injectors positioned in the

combustion chambers between the valves ensure a smooth, efficient and clean combustion process. The engine fulfils the European EU5 standard as well as the ULEV II standards in the US.

Compared with the engine featured in the BMW X6 xDrive50i, this version has been modified in numerous respects to the specific requirements of the BMW ActiveHybrid X6. There is no starter, alternator, or belt drive for the air-conditioning compressor and hydraulic pump. The dual-circuit cooling system has been modified for all-electric operation.

**Electric motors for enhanced performance with no extra fuel consumption.**
When accelerating, the V8 engine of the BMW ActiveHybrid X6 joins forces with the electric motors to ensure optimum efficiency and dynamic performance. When the driver requires more power, the two electric motors supply additional torque for enhanced performance. This boost effect significantly increases the overall output of the vehicle, without increasing fuel consumption.

While the two electric motors have almost the same output, they have been modified in their performance characteristics to meet specific requirements. The power delivered is 91 hp and 86 hp, respectively, with peak torque values of 192 lb-ft and 206 lb-ft.

The electric motors support the combustion engine effectively throughout the entire speed range. The additional electrically-generated drive power reduces the power output required of the combustion engine when driving at steady highway speeds. Load shifts are managed to give the overall system enhanced efficiency under the full spectrum of driving conditions. During kick-down and maximum acceleration shifts, the electric motors help provide an additional boost of power.

Maximum system output is 480 hp, with peak torque of 575 lb-ft. This makes the BMW ActiveHybrid X6 the most powerful hybrid vehicle in the world, with acceleration from a standstill to 100 km/h in just 5.6 seconds.

**All-electrical driving mode results in zero emissions.**
With its combination of two-mode active transmission and high-performance battery pack, the BMW ActiveHybrid X6 is able to run on its electric motors alone at low speeds. This makes it a zero-emission vehicle under such conditions.

The BMW ActiveHybrid X6 may run on electric power alone regardless of the ambient temperature, as long as minimum operating temperatures are reached for the engine coolant, transmission fluid and high-voltage battery. Top speed in the electric mode is 60 km/h, maximum range is 2.5 kilometres.

While driving electrically, the BMW ActiveHybrid X6 retains all its safety and comfort functions. The brakes remain fully operational thanks to electric vacuum supply, and don't require the combustion engine to develop their full effect. The same applies to the Electronic Power Steering, with steering assistance being generated on demand by an electric motor.

Even the air conditioning remains fully available without any restrictions, running efficiently on an electrically operated air-conditioning compressor. Since the battery pack supplies the electric power to the 12-volt on-board network through a voltage converter, all other systems such as the lights, infotainment, and safety systems also remain fully functional.

**Brake Energy Regeneration:**
**Electric power generated without additional fuel consumption.**

The BMW ActiveHybrid X6 features an enhanced version of Brake Energy Regeneration already used in some current BMW models running on a combustion engine alone. With the BMW ActiveHybrid X6, the electric motors act as generators when coasting or applying the brakes in order to feed electric power into the battery pack.

This process recaptures energy which would otherwise be lost in conventional vehicles in the form of heat escaping through the brakes. Depending on road speed, one or both of the electric motors may perform the regeneration function.

The power delivered by the generator is about 25 times as much as the power provided by BMW's original Brake Energy Regeneration.

**Generator delivering electrical braking force.**

In the generator mode, the two electric motors recapture much of the energy that must be dissipated to slow the vehicle. The stopping force generated in this way is up to 0.3 G, significantly reducing the demands on the mechanical brake system.

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

The active brake servo builds up brake pressure with electrical control according to the signals emitted by the control unit. To ensure brake power assistance also in the all-electric mode, the BMW ActiveHybrid X6 employs an electrical vacuum pump. A mechanical failsafe function guarantees full operation of the brake system in the event of a failure or a fault in the electrical system. In this case, the stopping power required is generated by the hydraulic system alone, like on a conventional vehicle.

The primary task of the SBA system is to maximize the use of brake force available through the regeneration process. Via the xDrive powertrain, the hybrid system in the BMW ActiveHybrid X6 is able to transmit regenerative brake forces to all four wheels. And whenever the stopping power required exceeds the level of 3 meters/sec, the control unit builds up additional brake force through the mechanical brake by means of the active brake servo.

In braking situations critical to driving stability, the control unit receives additional signals from Dynamic Stability Control, affecting brakes and engine management to keep the vehicle safely on course. This ensures safe braking under all conditions, regardless of whether the stopping power needed is generated electrically or hydraulically.

All driving stability systems are tailored to the dynamic character of the BMW ActiveHybrid X6. Dynamic Traction Control, for example, provides maximum traction and drive power on loose surfaces such as snow or sand thanks to its higher slip thresholds. And with the DTC mode activated, the driver may opt for a particularly sporting style of driving all the way to a controlled slip in corners.

**BMW xDrive: intelligent all-wheel drive for extra performance, optimum driving stability and traction.**

The sporty driving behavior of the BMW ActiveHybrid X6 is due largely to BMW's xDrive all-wheel-drive system. Electronically controlled, variable distribution of drive power front-to-rear gives the BMW ActiveHybrid X6 superior traction and enhanced driving dynamics.

xDrive features smooth division of drive power through a transfer case with an electronically controlled multiple-plate clutch that feeds power to the axle with optimum wheel contact and grip on the road. Under normal conditions BMW xDrive distributes drive power to the front and rear axle in a 40:60 split. Sensors constantly measure wheel slip at both the front and rear, and varies the balance of drive power within a fraction of a second. Unlike conventional all-wheel-drive systems, xDrive "looks ahead" and does not only respond when a wheel has already begun to spin.

**Electronic Power Steering for even greater efficiency.**
The BMW ActiveHybrid X6 is the first Sports Activity Vehicle to feature Electronic Power Steering. This allows variable steering assistance both when driving with the combustion engine and in the all-electric mode.

Electronic Power Steering on the BMW ActiveHybrid X6 comes complete with fully integrated speed-related Servotronic steering assistance. Servotronic reduces assistance at high speeds ensuring not only directional stability but also extremely precise steering behavior in corner. At low speeds, on the other hand, for example when parking, extra power assistance significantly reduces the steering forces required.

**Liquid cooling for even greater performance on the high-performance battery pack.**
The high-voltage, nickel-metal hydrid technology (NiMH) battery pack featured in the BMW ActiveHybrid X6 has a total capacity of 2.4 kWh, with 1.4 kWh available nominally. Maximum output is 57 kW, with the battery's control unit constantly determining the output level currently available as well as the charge status of the battery.

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

Cooling by the air conditioning system is activated by an appropriate switch valve, with the electrical climate compressor being switched on automatically whenever required. The battery cooling function is separate from the vehicle interior cooling function. Using the air conditioning system for battery pack cooling is far more efficient and effective than using air cooling alone to maintain the battery pack at the optimum operating temperature thereby preserving the hybrid functions longer in extreme weather and sport driving conditions. As befits The Ultimate Driving Machine, the BMW X6 ActiveHybrid provides a driving experience like no other hybrid in the marketplace.

**Intelligent energy management and integral safety concept.**
The electronics for BMW ActiveHybrid have been developed especially for energy efficiency and driving flexibility. The control system constantly controls the distribution of energy as a function of ambient conditions, the status of the vehicle, and the demands made by the driver. The two overriding control factors are the charge status of the battery pack and the capture of energy generated through regeneration.

The BMW ActiveHybrid X6 fulfills BMW's integral safety concepts that have been updated for hybrid vehicles. Examples of the features of this safety concept are the different colors of cables to avoid confusion, the presentation of clear safety warnings, and protection of the entire electrical system via extra-large insulation panels and newly developed connectors.

The high-voltage battery pack is housed in a reinforced steel casing and is located just above the rear axle at an extremely safe location in the event of a collision. The status of the battery pack is constantly supervised by integrated safety electronics, and the driver will be informed immediately of any malfunction and, if necessary, the entire system can be automatically discharged and deactivated. In the event of a crash, the system is switched off automatically within a fraction of a second. The central safety electronics then assess the severity of the accident and ensure a safe operating mode if possible.

**Hybrid-specific Auto Start Stop function.**
The BMW ActiveHybrid X6 is equipped with a new generation of Auto Start Stop technology, specifically tailored to the requirements of a hybrid vehicle. Auto Start Stop functions at all ambient temperatures. While the engine is switched off, the electric air-conditioning compressor automatically maintains the climate and temperature desired within the passenger compartment. All

other electrically operated functions continue uninterrupted, with the on-board network supplied with power from the battery pack. The hybrid Auto Start Stop can be deactivated by choosing the Manual gearshift mode on the automatic transmission.

**Displays inform the driver of the operating status and efficiency of the hybrid system.**
Status of the hybrid system and current operating conditions are presented in two locations. The most important information is shown in the instrument cluster, separated according to operating mode. Further information and technical explanations are shown in the Central Display.

The drive displays are split into a conventional tachometer for the combustion engine and electric drive display in the lower part of the instrument cluster. The electric drive display shows the charge status of the battery pack, the regeneration status, and the electric motor operating status. In the Central Display, this information is supplemented by additional data on current operating conditions and the current flow of energy.

**Specific set-up of the suspension and the lightweight brakes.**
The chassis and suspension of the BMW Active Hybrid X6 is largely the same as the technology already featured on the BMW X6 xDrive50i. The front suspension is a double A-arm configuration ensuring excellent driving dynamics, comfort, and directional stability. Self-leveling with air suspension provides a constant ride height, even when carrying a heavy load.

Lightweight brakes decelerate the BMW ActiveHybrid X6 by means of aluminum floating calipers and brake rotors incorporating aluminum hubs (or hats). Lightweight materials engineering reduces unsprung mass and improves the vehicle's driving comfort and agility. Brake disc diameter is 15.2 inches up front and 13.6 inches at the rear.

20-inch light-alloy Aero wheels featuring an aerodynamically optimized design have been developed exclusively for the BMW ActiveHybrid X6. The tires feature runflat technology which enables the driver to continue driving after a complete loss of pressure.

Additional Canadian specifications and pricing for the 2010 ActiveHybrid X6 will be communicated closer to market launch in late 2009.

BMW Group Canada, based in Whitby, Ontario, is a wholly-owned subsidiary of BMW AG and is responsible for the distribution of BMW luxury performance automobiles, Sports Activity Vehicles, Motorcycles, and MINI. BMW Group Financial Services Canada is a division of BMW Group Canada and offers retail financing and leasing programs and protection products on new and pre-owned BMW and MINI automobiles, as well as retail financing for new and pre-owned BMW Motorcycles. A total network of 40 BMW automobile retail centres, 19 BMW motorcycle retailers, and 25 MINI retailers represents the BMW Group across the country.

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