

Audi 'green' issues and sustainability

Saving fuel and reducing emissions – start-stop on A3, A4 and A5.

Manual versions of the A3 and A3 Sportback 1.4 TFSI, 1.6 TDI and 2.0 TDI 140PS, A4 Saloon and Avant, A5 Coupé (pictured right), Sportback and Cabriolet models powered by the 1.8 TFSI (except Sportback), 2.0 TFSI and 2.0 TDI engines now return even better economy and lower CO₂ emissions with start-stop and recuperation.

How it works: start-stop

The Audi start-stop system uses state-of-the-art technology to deliver real world benefits without any need to change driving style. It works as follows:

- ▶ When a start-stop-equipped vehicle comes to rest with the gearstick in neutral and the driver's foot removed from the clutch pedal, the engine switches off.
- ▶ A confirmation message is shown in the dash display (see right).
- ▶ The brakes automatically maintain enough pressure to hold the car on a slope with a gradient up to 10%, whether facing up or down.
- ▶ The engine restarts as soon as the driver depresses the clutch pedal. An uprated starter motor restarts the engine in about two tenths of a second – faster, more quietly and more comfortably than on other cars equipped with similar systems.
- ▶ By the time the driver has engaged first gear and is ready to release the clutch, the engine has reached idle speed prior to driving away.
- ▶ Start-stop is activated automatically once the engine is warm, but can be deactivated at any time by pushing a button on the dash.

Less wasted motion – efficiency through recuperation.

The Audi A3 1.4 TFSI with manual transmission, all Audi A4, A5 Coupé, new A5 Sportback and A5 Cabriolet derivatives, plus the A6, Audi Q5 (pictured below right) and Audi Q7 ranges are now fitted with a brake energy recuperation system which makes use of the car's kinetic energy during deceleration.

How it works: recuperation

Brake energy recuperation makes use of a car's kinetic energy during deceleration. The vehicle's alternator converts the kinetic energy produced during braking into electrical energy which is then stored in the battery, reducing the load on the alternator and helping to reduce fuel consumption.

Benefits to fleet operators and drivers: start-stop

- ▶ Reduced CO₂ emissions promotes lower BIK tax for drivers than previously as start-stop-equipped models fall into lower tax bands than non-start-stop-equipped cars.
- ▶ Employers' Class 1A National Insurance Contributions are reduced as these are also based on CO₂ emissions.



New A1 compact range (right) nears production; hybrid powertrain enhanced further.

Audi developed its hybrid compact car project further in 2008 with the unveiling of the A1 Sportback Concept at the Paris motor show.

The five-door is an interpretation of the original A1 project quattro shown in 2007. Using a 1.4-litre TFSI engine in conjunction with a 27bhp electric motor, CO₂ emissions are reduced to just 92g/km. Yet the car is capable of reaching 62mph from rest in 7.9 seconds and has a maximum speed of 124mph.

The A1 Sportback Concept uses the latest lithium ion batteries to enable a zero-emissions range of up to 62 miles without intervention from the petrol engine.

World-class, clean-burning TDI technology.

Audi's TDI diesel engine technology is proven on road and track, with the diesel-powered R10 TDI sports-racer taking three consecutive outright wins at Le Mans in 2006, 2007 and 2008. In many circles, TDI is seen as the generic term for technical excellence. TDI models are available across the Audi range (except R8).

A4 and A6 TDIe models.

High-efficiency TDIe models are available in the A4 and A6 ranges, while the new 1.6 TDI engine powering the A3 and A3 Sportback has CO₂ emissions from just 109g/km.

The new A4 2.0 TDIe Saloon is the latest high-efficiency model in the Audi range, and possesses CO₂ emissions of just 120g/km, placing it in the 13% band for BIK tax – the most advantageous for a diesel. With combined fuel consumption of 61.4mpg, it makes the Audi A4 2.0 TDIe one of the most efficient models in the compact executive sector. Yet with a healthy 136PS, it blends spirited performance with fine dynamic appeal.

TDIe technology is also available in the A6 and A6 Avant ranges, with both models emitting just 139g/km of CO₂ and achieving 53.3mpg on the combined cycle.

Audi valvelift system enhances performance from TFSI engines.

The Audi valvelift system controls engine valve lift on TFSI petrol engines in two stages, ensuring optimum combustion chamber filling under all engine load situations. It regulates the amount of combustion air drawn into the engine by varying inlet valve lift; in most cases the throttle butterfly can therefore remain fully open, which largely eliminates undesirable throttling losses. The engine therefore breathes more freely and develops higher power and torque with lower fuel consumption and emissions.

Sports models benefit from lower CO₂.

The new V6 3.0 TFSI engine in the all-new Audi S4 and S4 Avant, launched in November 2008, not only decisively outperforms its V8 predecessor but does so with a 30% reduction in CO₂ emissions and improved fuel consumption.

A supercharger and direct injection FSI technology with valvelift help the new S4 Saloon return 29.1mpg on the combined cycle – a 27% improvement over the previous V8-powered S4 – while emitting 225g of CO₂, 30% lower than its predecessor (S4 V8 manual 322g/km).

