



## Stage II Vapour Recovery

- In a car some of the petrol evaporates into the air inside the petrol tank. When a car is refuelled the evaporated petrol is forced into the atmosphere. Stage II vapour recovery captures these emissions.
- Under EU Directive 96/63/EC most UK filling stations have controls in place to capture petrol vapour displaced from underground storage tanks (Stage 1b) when they are filled. Under UK legislation sites with petrol sales above 3.5 million litres per annum are installing petrol vapour recovery during refuelling of passenger cars (Stage II) before the 1<sup>st</sup> January 2010 deadline (2012 in Scotland).
- The EU Parliament has adopted the proposal for a Stage II Directive. The new Directive will require Stage II vapour recovery systems to be fitted to new sites, and those undergoing major refurbishment, selling more than 0.5 million litres of petrol per annum. It would also require retrofitting of Stage II to existing service stations with petrol sales above 3 million litres per annum by 31<sup>st</sup> December 2018.
- The new Directive also requires that capture efficiency limits be equal or greater than 85%. Member States are required to comply with this Directive by no later than 1<sup>st</sup> January 2012.

### Background

Petrol contains volatile organic compounds (VOCs), which evaporate inside a vehicles fuel tank into the air in the space above the liquid fuel. When a vehicle is refuelled, these vapours are forced out from the fuel tank by the incoming fuel and escape into the atmosphere through the filler neck of the fuel tank, unless controlled.

Under EU Directives, the UK Government has committed the UK to reduce emissions of VOCs as they contribute to the formation of low level ozone, a major air pollutant, in both the UK and Europe. These targets are already being met.

So called 'Stage I' vapour recovery has been in place for a number of years at storage terminals and at filling stations, to recover vapours that would normally escape into the atmosphere during the filling of storage tanks. This and other measures have reduced VOC emissions from the distribution of oil products by 70% between 1990 and 2006 (Source DEFRA). This downward trend is continuing.

Under the UNECE Gothenburg Protocol and the EU National Emission Ceiling Directive the UK has to reduce emissions of VOCs to less than 1.2 million tonnes per annum in 2010. UK emissions in 2006 were well below the target at 0.91 million tonnes per annum and have been on a downward trend since 1989. The emission of VOCs from the distribution of oil products was 3.6% of the UK total in 2006 and will continue to decline.

Furthermore, emissions of benzene have been on a downward trend since 1990. During this period all emissions of benzene from road transport have fallen significantly and are now less than residential emissions. The emission of benzene from the distribution of oil products are a small part of the emissions from road transport and were less than 0.4% of the UK total in 2006

The introduction of **Stage II** controls will capture the majority of the VOCs emitted during vehicle refuelling with petrol at filling stations. Under the UK programme, Stage II is required on those

sites with petrol sales greater than 3.5 million litres. These sites are currently required to implement Stage II Vapour Recovery by 1<sup>st</sup> January 2010 (2012 in Scotland).

### **Stage II Petrol Vapour Recovery Directive**

The European Parliament, on 5<sup>th</sup> May 2009, has adopted at first reading the proposal for a Directive on Stage II Petrol Vapour Recovery during Refuelling of Passenger Cars at Service Stations. The proposal had been agreed by Member States prior to the vote.

The new Directive will require the installation of Stage II petrol vapour recovery systems to be fitted to new sites, and those undergoing major refurbishment, with sales of petrol above 0.5 million litres per annum. It will also require retrofitting of existing stations with an annual throughput above 3 million litres by 31<sup>st</sup> December 2018; along with new sites, and those undergoing major refurbishment, with sales of petrol above 0.1 million litres per annum situated under permanent living quarters or working areas.

The Directive also requires that capture efficiency limits be equal to or greater than 85%. Member States are required to comply with this Directive by 1<sup>st</sup> January 2012.

The in-service petrol vapour capture efficiency of Stage II petrol vapour recovery systems must be tested at least once per annum either by checking that the vapour/petrol ratio under simulated petrol flow conditions is in conformity with the provisions in the legislation or by any other appropriate methodology.

The Directive closely follows current UK legislation/guidance, except for lower throughput limits (3 million litres per annum of petrol) and the mandatory retrofitting of Stage II PVR to existing petrol stations during major refurbishments.

The Directive would increase VOCs' recovery from the 70% reduction already achieved through a number of measures – see above – including Stage I vapour recovery.

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