COMMISSION OF THE EUROPEAN COMMUNITIES

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Accompanying document to the

PROPOSAL FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND COUNCIL

for a directive proposal for stage II petrol vapour recovery during the refuelling of petrol cars at service stations

Executive Summary - Impact Assessment

{COM(2008) 812 final}
{SEC(2008) 2937}

EXECUTIVE SUMMARY

This impact assessment accompanies a legislative proposal aimed at recovering petrol vapour which is emitted to the atmosphere during the refuelling of passenger cars at service stations (Stage II Petrol Vapour Recovery or PVR). These emissions contribute to local and regional air quality problems (benzene and ozone) for which there exist Community air quality standards and objectives. Ground level ozone is a pollutant which crosses national borders and is also the third most important greenhouse gas. Benzene is a human carcinogen with no known safe threshold.

Air pollution problems with a transboundary dimension like ozone must be tackled collectively by the Member States together in order for action to be effective. The current air quality objective for ground level ozone in Community law is widely exceeded and such exceeedences are very likely to persist despite the emission reductions of ozone precursor gases in the national emissions ceilings directive 2001/81/EC and the aims of the Thematic Strategy on Air Pollution.

The proposal has been prepared following commitments made by the Commission in:

– the Thematic Strategy on Air Pollution[1];

– the Commission's proposal to amend Directive 98/70/EC on petrol and diesel quality[2] which aims to facilitate a greater uptake of biofuels (and bioethanol in particular) by relaxing the vapour pressure requirements of petrol. The fuel quality directive is based upon Article 95 of the Treaty and its specifications apply uniformly across the EU. The Commission recognised that any relaxation of vapour pressure limits could lead to greater emissions of volatile organic compounds from refuelling and evaporative emissions from vehicles' fuel systems even in countries where Stage II petrol vapour recovery is already implemented. As such, the Commission indicated that recovery of petrol vapour during the refuelling of cars would be proposed to offset the increased emissions of volatile organic compounds across the EU.

– a statement accompanying the adoption at second reading of a new directive on ambient air quality[3] in which (i) the Commission recognised the importance of tackling air pollution at source in order to improve air quality; and (ii) signalled several new Community source-based measures including recovery of petrol vapour at service stations.

The analysis of impacts draws upon information from two separate consultancy reports from ENTEC and COWI[4] as well recent regulatory impact assessments accompanying national measures on Stage II petrol vapour recovery. The assessment has investigated the costs, costs effectiveness and benefits of introducing Stage II controls in a consistent manner across the EU whilst being consistent with existing Community legislation on Stage I petrol vapour recovery (covering the storage and distribution of petrol from terminals to service stations) and recognising the fact that over half of the Member States already have national Stage II

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1 Section 4.2.1.2 on page 9 of COM(2005) 446 of 21 September 2005.
2 Section 3(4) on pages 7 & 8 of COM(2007) 18 of 31 January 2007.
3 Directive 2008/50/EC on ambient air quality and cleaner air for Europe, OJ L152, 11.6.2008, p. 1 – 43.
4 http://ec.europa.eu/environment/air/transport/petrol.htm

PVR measures in place. Stage II PVR is also a requirement of an international protocol that the Community has signed but not ratified.

Several options have been considered including "conventional" petrol vapour recovery systems which capture escaping petrol vapour via a vacuum pump and redirect it to the underground storage tanks at service stations. This vapour is ultimately returned to the oil refinery when the service station's underground tanks are themselves replenished. A newer "at pump" Stage II PVR system has also been analysed which captures escaping vapour, cools it and recycles it directly to the dispenser where it is re-dispensed as liquid petrol. This latter system does not require any refurbishment of underground tanks or pipework and so is less disruptive to the service station operator particularly where an unscheduled retrofit is necessary.

The costs of installing Stage II have been calculated taking into account, numbers of stations, the size of stations, the cost of Stage II equipment (and its installation cost), the economic lifetime of the equipment and the economic value of the recovered petrol vapour excluding tax. Only those costs directly associated with Stage II PVR have been considered (i.e. which go beyond a normal new build or refurbishment and that would in any event require new fuel dispensing equipment). The benefits of reduced emissions have been estimated using simple damage costs per tonne of petrol vapour emitted and take into account the impacts of ozone on health and crops but ignore the impacts of ozone on the natural environment and benzene on health.

The Policy options considered are:

(1) Do nothing.

(2) Install Onboard Refuelling Vapour Recovery (ORVR) in passenger cars and light commercial vehicles.

(3) Install PVR Stage II equipment at

(a) All new and substantially refurbished service stations with a throughput greater than 500 m^3 of petrol per annum.

(b) At all new and substantially refurbished service stations with a throughput greater than 500 m^3 of petrol per annum and larger existing stations (i.e. with a throughput in excess of 3000 m^3 per annum).

(c) Option (b) together with service stations situated in or under residential accommodation irrespective of size

(d) Automatic monitoring of all stage II equipment that would restrict petrol sales if the equipment is not functioning correctly (to be applied in conjunction with all above options).

Options (1) and (2) were discarded at an early stage, whilst 3(c) represents the preferred option. Option 3(d) was rejected because of the uncertainty over costs and adverse impact on cost-effectiveness particularly as other cheaper means may be available to guarantee reliable in-service operation of Stage II PVR equipment.

The table below presents a summary of the costs and cost-effectiveness of the various options where this is possible.

Option	**Total cost €m**	**Emissions abated (tonnes)**	**Cost effectiveness (€/tonne)**		**Annualised Costs* *[& benefits]* in 2020 €m**
			Excluding recovered petrol	**Including retail value of recovered petrol**	
3a (At pump)	179.5	12 141	1540	915	11.1 [*11.5-34.0*]
3a (Conventional)	209.5	12 141	1760	1140	13.8[*11.5-34.0*]
3b (At pump)	317.4	17 769	1798	1171	20.8 [*16.9-49.7*]
3b (conventional)	389	17 769	2160	1533	27.2 [*16.9-49.7*]
3c (At pump)	not calc.	not calc.	Est. 1500	Est. 960	not calc.
3c (conventional)	not calc.	not calc.	Est. 1890	Est. 1340	not calc.
3d	Limited information available				

a – Stage II controls at new and substantially refurbished service stations
b – option (a) plus existing stations with throughput greater than 3000 m^3 per annum by 2020
c – option (b) plus all stations situated in residential accommodation irrespective of size/throughput
d – option (c) plus installation of automatic monitoring equipment
**-includes economic value of the recovered petrol (retail price)*

Limited information exists on the numbers of service stations situated under residential accommodation so it is not possible to calculate the total costs etc. However, the cost implications for a small service station with a throughput of around 500 m^3 have been estimated and the costs and cost effectiveness for a scheduled refurbishment are similar to the average figures associated with options 3(a) and 3(b) above.

The total costs and annualised costs in 2020 (between €20-30m) annually are modest. The cost effectiveness compares favourably with other available measures to reduce emissions of volatile organic compounds.

The Commission invited key stakeholders to respond directly to a series of questions about the possible introduction of Stage II PVR on 28 February. This invitation was also posted to the Europa web site so that the general public could also be consulted. The consultation was also publicised by "ENDS Daily" on 17 March 2008. Sixteen responses were received spanning Member State regions, environmental agencies, NGOs, equipment suppliers, service station operators, oil industry associations and vehicle manufacturers. A summary of these responses is available on line[5]. The responses spanned issues on health impacts of petrol vapour, the efficiency of Stage II equipment, the merits of automatic monitoring equipment and the cost effectiveness of the various options for installing stage II PVR equipment. These responses have been taken directly into account in drafting the key elements of the accompanying proposal notably in relation to service stations under residential

[5] http://ec.europa.eu/environment/air/transport/petrol.htm

accommodation, the lower cut-off for affected service stations and the automatic monitoring of in-service performance of equipment.