AECC Newsletter
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Affiliated to CEFIC

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INTERNATIONAL REGULATORY DEVELOPMENTS

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EUROPE

1. Low Sulphur Petrol introduced in Germany

Shell has launched a new grade of petrol with a maximum sulphur content of 10 ppm and an octane rating of 99 to be sold in 900 filling stations in Germany from June. Under the brand name “Optimax” it will be priced at 3 pfennigs/litre higher than the Super plus (150 ppm sulphur) fuel it replaces. BP Amoco will market a similar fuel in Munich and other oil companies are expected to follow.

In its announcement Shell references the need for this level of sulphur for direct injection petrol engines for maximum effectiveness and specifically references the launch of the VW Lupo FSI. (AECC Note: DeNOx catalyst/trap systems, needed for direct injection petrol engines, are inhibited by sulphur oxides in the exhaust. These are strongly adsorbed reducing NOx storage capacity. The extra regeneration required to remove sulphur oxides increases fuel consumption.)

2. EU Consultation on need to reduce Sulphur Content of Petrol and Diesel Fuels below 50 ppm

Commissioner Margot Wallström has asked stakeholders to express their views and to present any relevant findings on this issue. Input is required by end of July.

A panel of independent experts will review all of the submitted contributions. The Commission will then bring forward a proposal to amend the current legislation in respect of the remaining fuel parameters and, if appropriate, the sulphur content of petrol and diesel.

Questions include:

1. The magnitude of the additional environmental benefit gained from using petrol and diesel with a sulphur content of less than 50 parts per million. More specifically, what are the incremental benefits of using fuels with a sulphur content of (a) 5-10 parts per million and (b) 30 parts per million relative to fuels containing 50 parts per million of sulphur?
2. Should the uptake of new emissions abatement technology or fuel-efficient technology be encouraged in the automotive fleet? If so what type of low-sulphur fuel marketing regime would be justified?

3. European Environment Agency says transport sector falling short of goals

Rapidly growing transport volumes, especially for road transport and aviation, have over the past decades offset environmental gains from technology improvements. As a result, transport is contributing significantly to a number of environmental and human health problems; including climate change, acidification, ground level ozone formation and local air pollution, according to the recently released EEA study “Environmental Signals 2000".

The report says that transport is highly reliant on the use of non-renewable fossil fuels and is therefore a major contributor to greenhouse gas emissions (particularly carbon dioxide). As a result, growing transport volumes have led to about a 14% increase in energy consumption and a 12% increase in carbon dioxide emissions between 1990 and 1996. These trends show that to reduce the sector's energy consumption and emissions, policies should now focus on demand-management

measures to curb growing transport volumes together with efficiency improvements.

By 2010, transport is expected to be the largest single contributor to EU greenhouse gas emissions and may jeopardise the achievement of its target of an 8% reduction in greenhouse gas emissions by 2008-2012 under the Kyoto Protocol.

On the positive side, emissions of non-methane volatile organic compounds and nitrogen oxides have been falling since 1990, mainly due to the introduction of catalytic converters. However, the decrease has been slower than expected, as increasing transport demand has partly offset engine improvements. Transport continues to be a major contributor to acidification and air quality problems. In future, a significant further reduction of road emissions is expected to be realised through the implementation of directives resulting from the Auto Oil programme.

Fuel taxes provide the biggest contribution to revenues from all environmental taxes and are used to encourage a shift towards more environment-friendly fuels. Fuel tax differentiation has, for instance, been a major factor in the phasing-out of leaded petrol in the EU. In 1998, leaded petrol was 4-17% more expensive than unleaded petrol and up to 58% more expensive than diesel. As a result, the market share of unleaded petrol reached 75% in 1997 and leaded petrol is expected to be completely phased out by 2005. Increased fuel taxes tend to stimulate energy savings through efficiency improvements and thus reduce fuel demand.

Car travel is increasing throughout Europe, but over half of all car journeys are less than 6 km in length and 10 % are for local trips covering distances of less than 1 km. Short car journeys are particularly bad for the environment.

4. UK Cleaner Vehicles Task Force Final Report

This task force launched in 1997 aims to create a new partnership between UK Government and the private sector to promote environmentally friendly vehicles that are cleaner, quieter and more fuel efficient, improve the environmental performance of existing vehicles and to encourage the use of cleaner fuels.

The Technology and Testing Group concluded that the government's health based air quality objectives for 2000–2008 for NO_2 and PM 10 were unlikely to be met in some parts of the UK without further action. A potential way of reducing emissions of these pollutants particularly in urban areas, is to target the large number of pre-Euro 1 light duty vehicles and pre-current legislation heavy duty vehicles and the population of high and 'gross emitters' i.e. poorly or non maintained, or malfunctioning vehicles which emit key pollutants at anomalously high rates.

The report says that selective application of retrofit technology will reduce emissions, but will need rapidly implemented incentives to ensure uptake. The following options are estimated to be the most cost effective means of reducing emissions:

1. Retrofitting of 3-way catalysts to pre-Euro 1 light duty petrol vehicles
2. Fitting particulate traps to pre-Euro 1, Euro 1 and Euro 2 engined heavy duty vehicles and/or
3. Fitting of oxidation catalysts to pre-Euro 1, Euro 1 and Euro 2 engined HDVs.

The UK government has announced that it will be spending GBP 6 million (€ 9.5 million) this year on a Cleaner Vehicles Programme to take forward the Task Force's recommendations on retrofitting.

NORTH AMERICA

5. US EPA proposes Heavy-duty Emissions & Fuels Package

On 17 May, EPA announced its long awaited proposal to substantially reduce emissions from heavy-duty vehicles and engines and to reduce the sulphur content in diesel fuel. New emission standards would begin to take effect in 2007, and would apply to heavy-duty highway engines and vehicles. These proposed standards are based on the use of high efficiency catalytic exhaust emission control devices or comparably effective advanced technologies. Because these devices are damaged by sulphur, EPA has also proposed to reduce the level of sulphur in highway diesel fuel significantly by the middle of 2006.

Highlights of the proposal include:

Proposed Standards

EPA is proposing a particulate matter (soot) emission standard for new heavy-duty engines of 0.01 grams per brake - horsepower - hour (g/bhp-hr), to take full effect in the 2007 model year. The current standard is 0.1 g/bhp-hr.

EPA is also proposing standards for nitrogen oxides (NOx) and hydrocarbons (HC) of 0.20 g/bhp-hr and 0.14 g/bhp-hr, respectively. The current standard for NOx is 4 g/bhp-hr and the HC standard is 1.3 g/bhp-hr. These standards will be phased-in for diesel vehicles between 2007 and 2010. Gasoline vehicles would have to meet these standards in 2007.

The sulphur content of diesel fuel, used in highway vehicles, would be limited to a cap of 15 parts per million (ppm) beginning 1 June 2006. The current standard is a cap of 500 ppm.

Costs of Proposal

The cost of reducing the sulphur content of diesel fuel would result in an estimated increase of approximately three to four cents per gallon.

EPA estimates that vehicle costs would increase from $1,000 to $1,600 depending on the size of the vehicle. To put this in perspective, new heavy-duty trucks can cost as much as $150,000 and buses can cost $250,000.

Environmental Impacts

If this programme is implemented as proposed, diesel trucks and buses will have dramatically reduced emission levels. It will make heavy-duty diesel emissions equivalent to new cars and would, for the first time, result in the widespread introduction of exhaust emission control devices on diesel engines.

By 2007, EPA estimates that heavy-duty trucks and buses will account for as much as 30 percent of nitrogen oxides emissions from transportation sources and 14 percent of particulate matter emissions. In some urban areas, the contribution will be even greater. The proposed programme would result in particulate matter and oxides of nitrogen emission levels that are 90% and 95% below current standards levels, respectively.

The clean air impact of this programme would be dramatic when fully implemented.

By 2030 annual emissions of nitrogen oxides, non-methane hydrocarbons, and particulate matter are projected to be reduced by 2.8 million, 305,000 and 110,000 tons, respectively.

6. BP Amoco Says ULSD sharply cuts Emissions

BP Amoco has announced that initial testing of its new ultra low sulphur diesel fuel, which has a maximum sulphur content of 15 ppm, shows "dramatic" decreases in soot, hydrocarbons and carbon monoxide, and reduced emission levels by more than 90% when teamed with catalytic exhaust filters.

The year-long test, which began last autumn on more than 180 urban commercial vehicles from seven Southern California fleets, was initiated by Arco on its new EC Diesel fuel and is continuing under BP Amoco, which recently acquired Arco.

7. EPA's Annual Air Quality Trends Report Shows Continued Improvement

EPA's recently released "National Air Quality and Emissions Trends Report 1998" shows that air pollution levels continued to decrease over the ten-year period 1989-1998. During that period, ambient concentrations of carbon monoxide decreased by 39%, lead by 56%, nitrogen dioxide by 14%, ozone by 4%, particulate matter (PM10) by 35% and sulphur dioxide by 39%. In 1990, 274 areas were designated as non-attainment for at least one of the ambient air quality standards but by September 1999 the number of non-attainment areas was down to 121.

8. SCAQMD Board adopts Clean Vehicle Fleet rules

The South Coast Air Quality Management District Governing Board has adopted the first in a series of regulations that will gradually shift the region's transit buses, refuse trucks and other vehicles from diesel to clean fuels or low emissions technology.

The action follows a study by SCAQMD late last year, which showed that some 70% of the 1,400 in one million cancer risk from toxic air pollution in the area stems from diesel exhaust. Diesel vehicles also are a major source of the smog-forming nitrogen oxides.

As a result public transit agencies, cities and refuse collectors under contract to public agencies will be required to purchase clean-fuelled buses and trucks whenever they replace or add vehicles to their fleets. Clean fuels include compressed natural gas, liquefied natural gas, propane, methanol, electric batteries and fuel cells. Should manufacturers develop diesel trucks and buses certified by the state of California to be as low polluting as clean-fuelled models, SCAQMD pledged to amend the rules within 90 days to allow purchase of diesel vehicles too.

A number of public financing programs are in place to help local governments meet the extra costs. In addition, SCAQMD is working to support the Governor's proposal to make $50 million available to fund purchases of cleaner school buses.

ASIA - PACIFIC REGION

9. Taiwan releases 1999 Air Quality Analysis

The Taiwan EPA air quality monitoring report for 1999 confirms that air quality in Taiwan is steadily improving. Although in 1999 the number of days with poor air quality was 4.87%, slightly higher than 4.61% in 1998, air quality has still been steadily improved from 5.23% in 1997 and 6.83% in 1994. In this time frame, overall air quality has been improved by 30%.

10. South Korea proposes to tighten New Vehicle and Fuels requirements

South Korea has proposed to significantly tighten emissions standards for new vehicles and to improve fuel quality. For petrol-fuelled cars, they intend to phase in the California LEV standards beginning in 2002; similar LEV standards will be introduced for light trucks in 2003. A Cold Temperature CO standard of 6.3 g/km will also be introduced for new cars starting in 2003. Euro III standards, introduced in EU this year, will be introduced for trucks in Korea in 2003. As a result of these new requirements, Korea expects that catalysts on new petrol fuelled cars will be substantially more durable and that oxidation catalysts will be needed for new diesel cars for the first time. Some light duty diesel trucks may require the use of particulate filters. Similarly it is expected that some heavy-duty diesels may require the use of particulate filters with all others at least requiring an oxidation catalyst. Sulphur levels in both petrol and diesel fuel will be reduced by 2006 to 30 ppm and 50 ppm respectively. The proposals are expected to be adopted by the end of July. For light and heavy-duty diesels, a further step, probably the Euro IV standards, is expected to be proposed in the future, possibly to go into effect in 2007.

11. Hong Kong decides to stimulate Ultra Low Sulphur Diesel

After months of debate, Hong Kong has announced its decision to accelerate the introduction of ultra low sulphur diesel fuel (ULSD) with a maximum sulphur content of 50 ppm. The tax incentive (which will make ULSD cheaper than 0.05% S diesel) will be available by 7 July this year. ULSD is expected to be available at all stations soon thereafter.

12. Recent Developments in China

New Clean Air Law

The new Clean Air Law has been adopted and will go into effect on 1 September this year. It contains several detailed provisions that are motor vehicle related. These cover retrofitting in-use cars, inspection & maintenance requirements, fuel quality, operation of I & M programmes, penalties & enforcement and national standards.

A new tax scheme has been developed whereby vehicles meeting European Stage 2 standards will be eligible for a 30% tax reduction. Presently the “consumption” tax is 8% of the price of the vehicle. For a $10,000 car this is $800. If such a car meets Stage 2 standards, the tax would be $240 less.

13. FORTHCOMING CONFERENCES

"4th International ETH-Conference on Nanoparticle Measurement"

7-8 August 2000, ETH-Zürich

Details from: Andreas Mayer at TTM, Email: ttm.a.mayer@bluewin.ch

"Tomorrow's power train – soul of the vehicle or simply a sub-system"

7-8 September 2000, Graz, Austria

Details on AVL homepage www.avl.com/engine_environment

"9th Aachen Colloquium – Automobile and Engine Technology"

4-6 October 2000, Eurogress Aachen

Details from: VKA, IKA, RWTH or VDI

"Vehicle In-Use Compliance Testing – Strategies for Meeting the New Requirements"

15-17 October 2000, Kempinski Hotel, Berlin

Details from: Intertech, Tel. +1 (207) 781 9800, Fax. +1 (207) 781 2150, Email info@intertechusa.com, www.intertechusa.com

Covers business, technical, legal and practical strategies for adopting and implementing in-use compliance programmes including influence of low sulphur fuels and particulate traps, DeNOx and lean-burn systems

"21st Century Emissions Technology"

4-6 December 2000, IMechE, London

Details from: IMechE, Tel. +44 20 7975 1312, Fax. +44 20 7222 9881, Email s_love@imeche.org.uk

Includes fuels and emission control technology.