Comments on the future euro VI emission limits for heavy duty vehicles

EU DG Transportation does a public consultation on the future EURO VI emission limits for heavy duty vehicles. Answers should be sent to EU DG Enterprices latest September 5, 2007. This is the official answer from EcoPar AB, that market and sell synthetic diesel oil in Sweden and some other EU countries.

Comments on the EURO VI scenarios A, B, C, and D;

Why will positive ignition engines (PI) be allowed to emit more emissions of both NOx , particles(PM) and total hydrocarbons(THC) than diesel engines (CI engines) in scenarios C and D? Are emissions les dangerous if they come from gas powered vehicles?

Gas powered engines and vehicles are more expensive and have a lower energy efficiency than diesel engines. Their advantage has been that they are cleaner than diesel engines, but suddenly thay should be allowed to have higher emissions than diesel engines... Then they have lost their only advantage over diesel engines, their cleanliness, so let us ben them instead. Gas powered engines (PI engines) have much higher emissins of greenhous gases. PI engines have about the same fossile CO2 emissions as CI engines but PI engines have much higher emissions of methane(CH4), a greenhouse gas that is 21 times stronger than CO2. So an increased use of PI engines will increase the emissions of greenhouse gases.

We prefer scenario C, and a motivation to this decision;

I would prefer alternative C, since this alternative allows most NOx per kWh for diesel engines. But why should the norms for gas powered vehicles (PI) be different and easier to reach?

Scenario C is reasonable, since many negative effects of NOx have been shown to be non-existent by researchers and this solution is the most cost-effective, and this solution gives the lowest greenhous gas emissions, calculated on both CO2 and methane(CH4).

NOx as a forest killer; Is this true really?

Professor Peter Högberg at the Swedish Forestry University (SLU), Umea, Sweden, and many of his colleagues in USA who do research on forests and what air pollutants that possibly damages them has come to the conclusion that the NOx emissions of Europe already today does NOT harm the forests!

NOx as a fertilizer that causes algae blooming in water; Is this true really?

Professors: Fredrik Wulff and Birgitta Bergman, University of Stockholm, and Gösta Wallin, University of Gothenburg, have found out that increases and decreases of NOx and ammonia to air, that eventually comes to lakes and seas in the form of ammonium and nitrate ions do NOT contribute much to algae blooming. This is because cyano bacterias (“blue-green algae”)

can use air nitrogen to produce ammonium ions, proteins, etc. When the cyano bacterias die and break down, which occurs the whole time, this organic bound nitrogen becomes e.g. nitrate ions, just like NOx from the traffic. If there is less NOx and other nitrogen fertilizers from the traffic and agriculture, then there will be more cyano bacterias.... so decreasing NOx from the traffic will Not help agains algae blooming. ONLY decreases in phosphates, sulphur, iron, etc. will help.

NOx as a city air pollutant, is this true, really ?

NOx does not cause ozone either. Hydrocarbon gases in the athmosphere does... This hydrocarbon gases, often called HC or VOC, are broken down to ozone, water and CO2 in the atmosphere. NO2 can catalyze this reaction, BUT most of the emission from diesel engines is the gas: NO. NO destroys ozone by: NO + O3 -→ NO2 + O2. If the levels of NO and ozone is measured in city air, it is clearly seen that when NO increases, then ozone decreases... SO if ozone should be decreased, it is very inefficient to decrease NOx (mainly NO) from diesel engines that produces mainly NO... (Sources for this information: IVL reportB-1305:"POCP for individual VOC under european conditions, September 1998. Long term everyday measurements on the air of Gothenburg performed during many years, performed by the City of Gothenburg, avalable on Internet.)

If ozone should be decreased, try to stop all hydrocarbon emissions to city air instead. They come mainly from industries, lawn movers, vespas, and other machines with small petrol engines and bad combustion. So stop them instead...

If there is about 5 ppm of NO in air, that air can be regarded as medicine according to the nobel price winners of 1998. The company AGA-Linde Gas AB in Sweden has patented NO in air as a gas with medical properties, good for people with weak lungs, astma, etc.

If there are some streets in some EU cities with too high NOx levels, then change the traffic in theses cities! Let them make local emission regulations and traffic solutions! Please do not destroy the production of heavy duty vehicles, which will lead to more expensive transportations in EU, which in turm leads to decreased competitiveness of EU / Europe and lower standard of living in Europe, plus increases in greenhouse gas emissions.

An environmental alternative to the old and rather paranoid diesel engine hunt;

If EU really wants to decrease greenhouse gases, decrease the crude oil dependence in the transport sector, please consider this solution:

Natural gas and biogas are converted to synthesis gas (and steam), which in turn is converted to synthetic diesel oil (and steam). With the steam, electricity, process steam for other industries, and household heating can be produced. (The co-production of steam cannot be avoided.)

.... This scenario would lead to a decreased dependence of crude oil in the transportation sector (also with continued use of diesel engines and trucks), decreased emissions of both fossile CO2 and methane, since one energy unit of natural gas feedstock gives about 30 % less fossile CO2 than the same energy unit of crude oil feedstock. Since it is most energy

favourable to co-produce e.g. steam/electricity and synthetic fuels from natural gas/fossile gas and biogas, and since steam in a by-product from these processes, this scenario would also lead to a decrease in the use of coal in Europe. Coal is normally used for electricity production. A decreased use of coal gives even more decreases of fossile CO2.....

It is fully possible that both the coal industry and the oil industry of Europe hates this solution, because it will lead to a decreased use of both crude oil and coal. But the EU citizens and the environment would love this solution. Also natural gas companies (if there are any of them that are independent of large oil companies) and small new enterprices like EcoPar AB with the technology of the future would like this solution.

If you want to know more about the production and use of synthetic diesel in Europe and how it works in practice, please contact:

Andreas Eklund
M.Sc.Chem.Eng.
Research and Development Manager
EcoPar AB
Gothenburg and Sodertalje
Sweden

http://www.ecopar.se