

**Protocol to the 1979 Convention on
Long-Range Transboundary Air Pollution
To Abate Acidification, Eutrophication
And Ground Level Ozone**

The Euromot Position

The European Association
of Internal Combustion
Engine Manufacturers
President:
Horst Dekena
General Secretary:
Dr Hartmut Mayer

EUROMOT 2002
© Frankfurt/Main

Lyoner Strasse 18
60528 Frankfurt/Main

fon 0049 69 6603-1354
fax 0049 69 6603-2354
eMail euromot@vdma.org
web www.euromot.org

EUROMOT
Engine-in-Society

Euromot is the **European Association of Internal Combustion Engine Manufacturers**.

We represent the leading manufacturers of internal combustion engines used in a broad range of nonroad and marine applications (construction, mining and material handling equipment, trucks and buses, agricultural and forestry equipment, commercial marine and seagoing vessels, workboats and pleasure boats, rail traction, lawn/garden and recreational equipment, power generation).

Euromot has been working for many years with international regulatory bodies, eg European Union, the UN International Maritime Organizations (IMO) and the Central Commission for the Navigation on the Rhine (CCNR), and with national governments to provide reliable know-how on advanced internal combustion engine technologies in general and, in particular, on the feasibility of environmental as well as cost-effective product regulations.

For more information about our Association please pay us a virtual visit at <http://www.euromot.org> – **your bookmark for engine power worldwide** – and pay special attention to

- our **members directory** at <http://www.euromot.org/frameset.php4?FAM=1>
- our **positions** at <http://www.euromot.org/frameset.php4?POS=1>

Introductory remark

The exhaust emission limits set for "new stationary engines" (reciprocating internal combustion engines) in the Gothenburg Protocol 1999 are not representing the Best Available Technique (BAT) approach and the strong requirement to improve energy efficiency in the lights of the Kyoto Protocol.

In the following text we want to draw your attention to our concerns and to the resulting economic impact and the technical feasibility the implementation of the Gothenburg Protocol will result for stationary engine plants. Last but not least, a unilateral Protocol shall take a cost-effective regional approach to combating air pollution, treat all prime mover technologies on an equal basis and enhance techniques improving energy efficiency. Euromot is of the firm opinion that the UNECE Gothenburg Protocol does not satisfy this requirement for stationary engines.

This briefing paper has two parts:

- **The engine manufacturers economic and technical concerns, and subsequent recommendations (as explained here below)**
- **The technical reasoning of the engine manufacturers concerns (see <http://www.euromot.org/frameset.php4?POS=1>)**

Technical and economic concerns, and subsequent recommendation

1 Concerns of the engine industry

- If engine manufacturing and operating industry would have been consulted when evaluating the Protocol, many misunderstandings and misperceptions of the reciprocating engine technology would have been avoided.
- Emission limit values are very stringent, which force the early use of exhaust gas aftertreatment devices, but this technology is not yet mature enough and will need many years to prove its reliability and cost-effectiveness.
- Tons per year is at country level, but there are no indications about the effect of engine emission limit values.
- Boilers and single gas turbines (relevant only for big sources) $> 50 \text{ MW}_{\text{th}}$ are regulated, but much smaller reciprocating stationary engines will fall under the Scope of the Protocol. E.g. a power plant consisting of two (single) $45 \text{ MW}_{\text{th}}$ gas turbine units is not regulated under the Protocol, but a small spark ignition (SG) lean burn stationary engine driven power plant consisting of a small engine above 1 MW_{th} is.

- Overall CO₂ reduction has not been taken into account, i.e. no efficiency bonus has been implemented, as done for e.g. gas turbines, so that the strict emission limits will lead to an increase in fuel consumption and hence higher CO₂ emissions.
- Highly efficient CHP (Combined Heat & Power production installations) will become less economically attractive due to increased engine operating cost and added cost of aftertreatment systems.
- Engines fired with renewable energy sources (biogas, purification gas etc.) have not been considered.
- There are doubts, if the values for spark ignited engines are technically correct.
- It is not reasonable to restrict the use of diesel engines for stationary power generation, especially for countries out of Europe with a less favourable existing infrastructure, and cheap energy for those countries is a must. This will be the consequence, if the limit values of the protocol are adopted by other bodies for environmental reasons, e.g. World Bank, without being aware of the severe consequences.

2 Recommendations

In Section B) the economic and technical impact of the Gothenburg Protocol 1999 is been explained. The limit values given in Table 4, Annex V are not appropriate to stationary internal combustion engines.

It is therefore proposed to adapt the situation by measures which will reduce the fuel consumption in the engine driven plant and get a cost-effective balance between economical and environmental aspects:

- Article 3, paragraph 2 of the Protocol states that "As an alternative, a Party may apply different emission reduction strategies that achieve equivalent overall emission levels for all source categories together"
- In Annex 2 of the Gothenburg Protocol 1999 the emission ceilings (based on the critical loads) are listed that are to be achieved per country and EU has also listed similar national emission ceilings in Directive 2001/81/EC.

Therefore, it should be possible to deviate from the Table 4 "Limit values for NO_x emissions released from new stationary engines" in Annex V of the Gothenburg Protocol 1999 and anyway ratify the Protocol with the deviation according to the rules.

- The emission limits should be dependent on the plant size. For instance, UK engine standards < 50 MW_{th} are following the BATNEEC (Best Available Techniques Not Entailing Excessive Cost) approach whereas engines > 50 MW_{th} follow the BAT principle.
- An emission bonus (CO₂-bonus) should be granted to high efficient engine plants.
- Engines (spark ignited gas engines, diesel engines) are a European technology. The leading "players" in this field are European companies. Engine factories are located throughout Europe, in France, Germany, Austria, UK, Finland, Italy, Spain, etc.

- Emission limits shall be on equal conditions for all prime movers, which approach the Gothenburg Protocol does not follow. Limits shall be realistic and giving the industry a chance to comply.
- Environmentally beneficial engines using renewable energy sources should be exempted.

Euromot is further of the strong opinion, that the elaboration of a European Directive giving state-of-the-art requirements to be applicable for Stationary Engine Power Plants of all sizes should be initiated. We therefore are ready to enter into the discussion in order to find cost effective solutions, taking into account both environmental and economic viewpoints.

2002-10-01