

EN

EN

EN



EUROPEAN COMMISSION

Brussels, 7.7.2010
SEC(2010) 828 final

COMMISSION STAFF WORKING DOCUMENT

SUMMARY OF THE IMPACT ASSESSMENT

Accompanying document to the

**Proposal for a
DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
amending Directive 97/68/EC as regards the provisions for engines placed on the market
under the flexibility scheme**

COM(2010)362 final
SEC(2010)829

COMMISSION STAFF WORKING DOCUMENT

SUMMARY OF THE IMPACT ASSESSMENT

Accompanying document to the

**Proposal for a
DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
amending Directive 97/68/EC as regards the provisions for engines placed on the market
under the flexibility scheme**

1. PROBLEM DEFINITION

The Non-Road Mobile Machinery Directive 97/68/EC¹ (NRMM) regulates the exhaust emissions (carbon oxide (CO), hydrocarbons (HC), nitrogen oxides (NO_x) and particulates (PM) from diesel engines installed in non road mobile machinery including construction, agricultural and forestry machinery, railcars & locomotives, inland waterway vessels, constant speed engines (mostly used in generator sets and pumps, etc) and small petrol engines used in different types of machinery (including handheld equipment like chainsaws etc).

The current stage of emission limits applicable for type approval of the majority of diesel engines is referred to as Stage III A. It will be replaced by the stricter Stage III B limit for engines to be placed on the market from 2011 onwards depending on the engine power category. The necessary changes to the configuration, size or weight of engines have an immediate knock-on effect for Original Equipment Manufacturers (OEMs). Technical solutions for complying III B engines are not in general yet finalised. Since the re-design of engines and machinery cannot be done in parallel but only subsequently, further research and technological development is required by OEMs to ensure that complaint Stage III B machinery can be placed on the market. Apart from the redesign of the body of the machinery, the production line of machinery (additional space, raw material handling and storage, costs etc) must also be adapted. The situation for machinery covered under the NRMM Directive is as follows:

- For construction and agricultural machinery, technical solutions for OEMs are still to be found and consequently increased R&D efforts are necessary.
- Railcar OEMs have fewer difficulties as they mostly use engines already developed for on-road uses but problems are encountered in the redesign of the vehicles to accommodate in a tight space the engine and the after-treatment systems.
- Locomotive OEMs have the biggest difficulties to comply with the new limits and will definitely not be ready by 1.1.2012. The adaptation of vehicles compliant to Stage III B has not yet started.

Compliance costs for OEMs to cope with the new emission limits are significant. From late 2008 onwards most parts of the European industry producing non road mobile machinery have unexpectedly and severely hit by the global financial and economic crisis. Particularly the sales of construction equipment and agricultural machinery dropped up to 60% depending on the market segment during 2009 and latest forecasts do not expect a recovery till the end of 2010. For railcars difficulties occur, while the impacts of the crisis do not seem as severe as for construction equipment and agricultural machinery. Due to the drop in sales OEMs are lacking the necessary financial means to produce in time machinery that respects the new emission limits.

The Commission proposal to amend the Non-Road Mobile Machinery Directive responds to the adverse market conditions as described above.

¹ OJ L 59, 27.2.1998, p.1.

2. ANALYSIS OF SUBSIDIARITY

The subsidiary principle is respected by the proposal, since the Directive already harmonises the type approval procedure for placing engines on the market and Member States cannot take action individually.

3. OBJECTIVES

The **general objective** of the amendment is to mitigate, at the best possible point, the impacts of the current economic crisis for engine and machinery manufacturers of some kind of non road mobile machinery to maintaining competitiveness and employment while at the same time limiting as much as possible negative environmental impacts stemming from a later replacement of a defined number of existing engines that do not yet comply with the new more stricter emission limit.

Specific objectives:

To maintain the competitiveness of EU NRMM industry and alleviate the immediate pressures brought about by the economic crisis.

To enable industry to continue financing R&D so that technology becomes available for all product types in Stage III B.

To limit the emissions of NRMM by enabling the replacing of older, more polluting and fuel consuming engines by cleaner ones.

Operational Objectives:

To introduce a cost effective and timely measure that allows EU engine and machinery producers to maintain their competitiveness and to continue selling products throughout Stage III B and therefore alleviate the immediate pressures brought about by the economic crisis.

To maintain the incentive to invest in R&D and develop cleaner engines that are compliant with future emission limit Stages.

To allow industry to finance expenditure on R&D in the short term to develop Stage III B compliant machinery by allowing them to continue to generate revenues from sales.

4. POLICY OPTIONS

The following options to tackle the identified problem have been identified:

4.1. For the sectors already covered by the flexibility scheme

4.1.1. No action = Base line option

OEMs can use the flexibility scheme provided for in the Directive. By using the flexibility scheme an equipment manufacturer is allowed to place on the market, during the period between two successive stages of limit values, a limited number of non-road mobile machinery which is fitted with engines that still comply with the previous stage of emission limit values. The flexibility scheme applies to construction and forestry machinery using

compression ignition (diesel) engines, generator sets and pumps using constant speed engines but not to locomotives, railcars and inland waterway vessels with diesel engines. An original equipment manufacturer has the options either to place on the market (1) for each engine power category a limited number of machines not exceeding 20% of the OEM's annual sales of machinery (calculated as the average of machinery sales in the EU of the latest 5 years) or (2) a fixed number of machines as stipulated in the Directive.

4.1.2. Provision of loans for purchasing stocked engines manufactured under the so called sell-off period

The Directive provides the possibility that, while Stage III A is in force, industry may produce engines and machinery and stock them in the EU territory to keep industries running and to cover the needs of other countries that do not have strict exhaust emissions limitations as EU. After the beginning of implementation of Stage III B, these stocked engines and machinery may be placed on the market for a period of two years. This option suggests the use of government backed loans to be granted to OEMs to purchase Stage III A engines for stock.

4.1.3. Implementation of a scrapping scheme at national level

The use of a scrapping scheme would be a subsidy, given as an incentive, to the user to buy new machinery, with a Stage III B engine. Under this option, the owner of older, more polluting machinery will deliver the machinery for scrapping. A National Public authority would grant a lump sum to the owner of the scrapped machinery. The owner will receive the money via banking or the tax system when the purchase of new machinery is proven.

4.1.4. Alternative types of provisions under the flexibility scheme

4.1.4.1. Implementation of a scaled percentage of the flexibility scheme

The option suggests the implementation of a different percentage of flexibility to each of the various types of machinery, according to the particular transitional problems encountered from Stage III A to Stage III B plus a similar approach with regard to the fixed numbers.

4.1.4.2. Increase of flexibility percentage to 50%

This option suggests increasing flexibility from 20% to 50% for all machinery currently covered by the scheme. The fixed maximum number of engines would be amended accordingly.

4.1.4.3. Conditional use of the flexibility scheme, with penalty mechanism

In order to maintain the incentives to develop III B machines, a system could be introduced where additional flexibility used in the transition from Stage III A to Stage III B will trigger a penalty after several years. This would maintain the incentive for the OEMs to develop machinery with III B engines and use only the minimum additional flexibility they need in order to temporarily overcome the economic crisis.

4.1.5. Implementation of a trading system

A system could be established whereby firms that would not use the entire flexibility could sell their flexibility rights to firms that need additional flexibility. This scheme would require

a mechanism to sell flexibility (permits) and a system in place to monitor the scheme. The price of each permit of flexibility would be determined by the market.

4.2. For the railcars sector currently excluded from the use of the flexibility scheme

The same options as described under 4.1. have been considered plus the introduction of a flexibility percentage of 20%.

5. ASSESSMENT OF IMPACTS

5.1. For sectors already covered by the flexibility system

The option of **doing nothing** would not be effective in reaching the objectives since industry would remain in a situation where producers could not sell any longer compliant machinery. Some firms would subsequently go out of business resulting in unemployment.

The option that **OEMs buy stocked engines** from an engine manufacturer to continue to sell III A machinery is not feasible. Due to the economic crisis, cash flow is limited and private banking institutions are not providing sufficient credit. An incentive to produce more Stage III A engines would result in a huge number of Stage III A engines, instead of developing more environmental friendly III B engines.

The use of a **scrapping scheme** will not assist OEMs in financing the R&D to make Stage III B machinery available. Whether the prospect of a scrapping scheme would be sufficient to induce banks to hand out additional loans to OEMs for R&D remains doubtful. In addition if Member States implemented the scrapping scheme in different ways, this could lead to a fragmentation of the Internal Market and to distortion of competition.

A **flexibility trading system** by which firms could buy additional flexibility from those firms that do not need it, would provide a strong incentive to comply as soon as possible with the new emission limits. However, setting up such a complex system in a short time scale would be disproportionate to the expected achievements.

The **implementation of scaled percentages of flexibility for the different types of machinery**, depending on the problems they encounter for the transition from Stage III A to Stage III B is not feasible since there is no specific inventory of the machinery in each machinery type, nor a relevant system to survey the number of sales.

The use of the **flexibility scheme with penalty mechanism** would limit concerns that competitive distortions may occur from enlarged flexibility. However, there is a lack of available information concerning compliance of non-road mobile machinery which would place a significant burden on competent National authorities that render this option practically unfeasible and the preparation and implementation of such a mechanism would entail disproportionate costs (notification and surveillance) with regard to the benefits triggered by its application.

Assessing the impacts of the **option to increase the flexibility mechanism to 50 %** for machinery already covered by flexibility has to take into account environmental, social and economic impacts. Environmental impacts have been determined based on external costs of calculated emissions. Emissions have been calculated taking into account machinery/engine stocks, average use and lifetime of machinery. Economic impacts have been determined in

terms of reduced compliance costs including research and development costs, variable production engine costs, equipment redesign costs, after treatment devices costs and fuel costs. Socio-economic impacts have been derived from the compliance costs and the specific market situations.

The environmental costs represent the cost generated from the additional emissions of the engines under the amended 50% flexibility scheme compared to the current 20% flexibility scheme. According to the methodology followed based on the Net Present Value (NPV), per type of pollutant the environmental costs resulting from a 50% flexibility compared to the current 20% flexibility are in the magnitude of:

Environmental costs occurred during 2008 – 2030:

Pollutant	50% flexibility (Million Euros)
PM	- 200
NOx	- 350
Total	- 550

The **economic impact** refers to compliance costs including mainly a reduction of peak efforts of R&D costs based on 2005 EUROSTAT figures. The Net Present Value of saved compliance costs of the use of the amended flexibility is as follows:

Economic Gains of 50% flexibility compared to 20% flexibility (million EUR)

Year	Stage X		discounted gain
	% gain in R&D	Monetized gain	
2010	0.1	496	458
2011	0.2	991	881
2012	0.3	1 487	1 271
2013	0.2	991	No gain due to overlap with next stage
Total discounted period gain			2 610
Total saved compliance cost			2 124

5.2. For sectors not yet covered by the flexibility system (railcars)

Following the assessment of options under point 5.1, it is clear that some of the options are not efficient in reaching the objectives, and are therefore unfeasible. The analysis therefore will focus on introducing flexibility of 20% and of 50%.

The **environmental impact** from the application of the flexibility scheme to railcars is calculated under the assumption that all engines under the 20% or 50% flexibility will be placed on the market in a three year period after the implementation of stage IIIB, for the fleet of railcars.

Percentage of flexibility (%)	Environmental costs (Euros) p.a
20%	3.400.000
50%	8.500.000

As regards the **economic impact** calculations related to the compliance costs of engines placed on the market under the proposed % of the flexibility scheme are as follows:

Percentage of flexibility (%)	NPV of saved compliance costs (Euros) p.a.
20%	4.900.000
50%	12.500.000

6. COMPARISON OF OPTIONS

A modification of the flexibility scheme generates both, a negative environmental impact and an economic benefit in saved compliance costs including a decrease in peak R&D investment costs, since these costs are spread over a longer period.

Comparison of options for sectors already covered under the flexibility scheme (NPVs, all costs in Euros)

	FLEXIBILITY PERCENTAGE	
	20%	50%
Environmental cost		550.000.000
Saved Compliance costs		2.124.000.000

Comparison of options for railcars (NPVs, all costs in Euros)

	FLEXIBILITY PERCENTAGE		
	N.A.	20%	50%
Environmental cost		10.200.000	25.500.000
Saved Compliance costs		14.700.000	37.500.000

Although the use of 50% flexibility for railcars results in higher savings of compliance costs the preferred policy option proposed is 20% for this sector since producers of railcars are for the first time proposed to become eligible to use the provisions of the flexibility scheme. For railcars III B technology already exists and should be encouraged as much as possible. Railcars are mostly 'borrowing' engines from the heavy duty vehicles (trucks, busses e.t.c.) and according to the industry, it is required only to adapt at some or more extend the engine to fit to the body of the railcar. Therefore the need to use Stage III A engines is not that imperative since compliant to Stage III B technology already exists and should be encouraged. The 20% of proposed flexibility scheme is expected to act as an upper limit to the placement of Stage III A engines to the market where a lot of railcar operators exist, but at the same time provide them the opportunity to stay in business so they can finance the completion of development of Stage III B engines.

In conclusion the option to increase the flexibility rate for those sectors that are already subject to the flexibility scheme by 50% and adapt the total number of engines to be placed on the market under the scheme accordingly, has been chosen.

In addition the option to include railcars in the flexibility scheme with a flexibility rate of 20% has been considered as the best option. These options reach an adequate balance between the need to maintain the competitiveness of the concerned industry during the crisis and to mitigate effects for the environment without requiring a change of the overall objectives pursued by the Directive to reducing the level of pollutant emissions from NRMM.

7. MONITORING AND EVALUATION

An assessment of the impacts of the enlarged provisions of the flexibility scheme after its implementation and completion will be based on information provided by the industry and by Member States based on Article 4 and Annex XIII of the Directive.