

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(82) 491 final

Brussels, 29 July 1982

## PROPOSAL FOR A COUNCIL DIRECTIVE

on crude oil saving through the use of substitute  
fuel components in petrol

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(presented by the Commission to the Council)

COM(82) 491 final

## EXPLANATORY MEMORANDUM

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### 1. Introduction and Administrative Background

- 1.1 The promotion of oil substitution is one of the guiding principles in Commission document COM(81)540 final of 2nd October 1981 entitled "The Development of an Energy Strategy for the Community".

This Directive concerns the introduction of substitute fuel components to save petrol in spark-ignition internal combustion engines used in motor vehicles throughout the Community. The Directive is confined to fuel blends which can be used safely and with similar performance to current petrol by vehicles propelled by spark ignition internal combustion engines currently in use or being offered for sale without requiring any modification.

The object of the Directive is threefold :

- (a) To provide a Community-wide minimum framework for investment decisions by the oil and motor industries regarding the production and use of petrol blends containing substitute fuel components.
  - (b) To ensure that existing or future legislation in individual Member States regarding the blends covered by this Directive does not impede their production, sale, distribution and use.
  - (c) To provide safeguards for motorists in the Community against damage to their vehicles from unknowingly filling up with fuel blends on sale in another Member State to which their vehicles have not been specifically designed or adapted.
- 1.2 At present, road transport in the European Community is almost wholly dependent on fuels derived from crude oil, approx. 80 % of which is imported. With no major technical breakthroughs in sight which would drastically reduce this dependence at costs acceptable in current market conditions, diminution of this dependence on imported oil must be sought through blending of substitute fuel components with petrol, together with the development of more fuel efficient engines and lighter vehicles, improved traffic flows and more economical driving patterns.

1.3 A "Special Group on Alternative Fuels" consisting of representatives of the Member States and the industry was established by the Commission in December 1979 to collect, examine and select existing information and data concerning the production, marketing and utilisation of substitute fuels for internal combustion engines to be used either on their own or as fuel components. The substitute fuel components considered were methanol and ethanol. Methanol can be produced from various fossil fuels (hard coal, lignite, gas, oil residues and biomass. Ethanol can be produced from agricultural products containing starch or sugar. Technical reports on methanol and ethanol were presented by Working Parties and finally adopted by the "Special Group on Alternative Fuels" on 30 June 1981. Although these two reports have formed the technical basis for the draft Directive other substances of the same chemical family known as organic oxygenates are covered by the Directive.

## 2. Economic and Technical Considerations

### 2.1 Availability

Present methanol and ethanol production in the Community could replace only a negligible proportion of conventional petrol (Community methanol production in 1979 was 2.5 million tonnes and ethanol production from agricultural raw materials was 0.5 million tonnes in 1978). Predictions about the future availability of these substances are subject to a number of uncertainties. To replace 10 % of petrol demand in 1990 by ethanol from indigenous Community resources would require a very large area of agricultural land (equivalent to the area of the Benelux countries). Although the outlook for the raw materials base for methanol is more promising as it can be produced in large quantities from fossil fuels and biomass, any plans to do so on a big scale as a motor fuel would require a new industry to be built up in Europe.

However, methanol could be imported in substantial quantities from outside the Community where its production provides an attractive use for raw materials currently wasted or unused. It offers an alternative to liquefaction and expensive LNG transportation and storage for bringing part of the energy content of gas currently flared or unexploited to distant markets and does the same for low quality coal which it would be uneconomic to transport in

the raw state. Several large installations to produce methanol for subsequent shipment are under consideration or construction in various oil, gas and coal producing overseas countries.

## 2.2 Production Technology, Costs and Fiscal Considerations

The production technologies for methanol synthesis and ethanol fermentation are well established and available in the Community. However, the manufacture of ethanol from cellulose, which would greatly enlarge its raw materials base, is still in the research stage.

There is a very wide range of production costs for these substances. Methanol produced from gas or some cheaply mined coal could be competitive with petrol provided the raw materials price is set sufficiently low. The cost of ethanol from agricultural raw materials produced in the Community is still some two to three times higher but new technologies may change the picture.

Although the high cost of some substitute fuels, notably ethanol, would require fiscal advantages or subsidies to be competitive with petrol, this is not true for other substitute fuel components. In these circumstances there is no need for special fiscal advantages or subsidies unless a high cost substitute fuel component is to be specially promoted.

## 2.3 Efficiency in Use

Under similar operating conditions, petrol blends with the substitute fuel components covered by the Directive show road performances close to conventional fuels. Although the calorific value of these substitute fuel components is somewhat lower than that of petrol they improve performance in other ways with beneficial overall results.

In any event the proportions of the substitute fuel components covered by the directive are quite small and their effect on performance thus does not exceed the normal range of differences in performance between petrols currently on sale.

#### 2.4 Storage and Distribution

Due to their special characteristics, the storage and transport of some substitute fuel components raise a number of problems. Parts of the storage system which are not resistant to alcohol corrosion may require replacement and stringent measures have to be taken to prevent entry of water and consequent phase separation. Provided the requisite technical modifications have been made, distribution of these blends raises no technical problems.

#### 2.5 Adaptation of Vehicles

No adjustments have to be made to vehicles using the substances covered by the Directive. However, some of these added in proportions greater than those stated in the annex or not listed therein may require vehicles to be adapted to their use. To ensure that such fuel blends are not unwittingly used in vehicles not so adapted, pumps from which they are dispensed to the general public require to be appropriately marked.

#### 2.6 Safety and the Environment

Since some of the characteristics of these substitute fuel components differ from those of petrol, different safety measures are required, particularly with regard to risks of fire and poisoning; there is also the requirement for denaturing ethanol to prevent attempts at using it in beverages. However, such fuels do not carry safety, health or environmental risks significantly different from those of petrol, particularly as the admixture of alcohol to petrol allows lead content to be reduced without lowering the octane rating.

3. <sup>3.</sup> Conclusion

In the light of future oil supply uncertainties, it is desirable to facilitate the production, sale, distribution and use of petrol blends containing organic oxygenates as substitute fuel components usable safely and with similar performance in existing vehicles.

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x x

The Commission therefore proposes the adoption of the proposed Council Directive.

COUNCIL DIRECTIVE

on crude oil saving through the use of substitute  
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THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community and in particular Article 235 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,

Having regard to the opinion of the Economic and Social Committee,

Whereas pursuant to Article 2 of the Treaty the Community has as its task to promote throughout the Community a harmonious development of economic activities, a continuous and balanced expansion and an increase in stability;

Whereas in the present energy situation a reduction in the Community's dependance upon imported crude oil will contribute effectively to the achievement of these objectives;

Whereas petrol used for the propulsion of vehicles powered by spark-ignition internal combustion engines is an important sector of oil consumption in the Community;

Whereas the use of crude oil to manufacture petrol for vehicles propelled by spark-ignition internal combustion engines can be reduced through blending hydrocarbon petrol with substitute fuel components;

Whereas these substitute fuel components can be produced from raw materials other than crude oil both inside and outside the Community, thereby broadening

Whereas the distribution and use of petrol blended with substitute fuel components as defined by this directive, require no, or only minor, modifications to existing petrol distribution systems and no modifications to existing vehicles propelled by spark-ignition internal combustion engines designed to operate on petrol;

Whereas the distribution and combustion of blends as defined by this directive carries no safety, health or environmental risks significantly different from those of petrol currently sold for automotive purposes in the Community;

Whereas the objective of saving crude oil makes it desirable that no obstacles are placed in the way of the manufacture, distribution, sale and use of suitable blends for the propulsion of vehicles powered by spark-ignition internal combustion engines;

Whereas cross-border traffic requires that motorists are offered compatible fuels for their motor vehicles everywhere in the European Community and potential users must be able to distinguish between fuels covered by this directive and others which can be used only in specifically designed or adapted vehicles;

Whereas scientific and technical developments may make it appropriate to modify the technical annex to the directive; whereas in order to make such modifications a procedure should be set up;

Whereas the Treaty does not provide the specific powers necessary for these purposes,

**HAS ADOPTED THIS DIRECTIVE**



Article 1

Member States shall take all such steps as may be necessary to ensure that there are no legal or administrative obstacles on their respective territories to the production, sale, distribution and use of petrol blends containing organic oxygenates as substitute fuel components which are in conformity with the technical annex, such blended fuels must be usable safely and with similar performance to current petrol by vehicles propelled by spark-ignition internal combustion engines currently in use or being offered for sale without requiring any modification to such vehicles.

Article 2

For the purposes of the directive, "petrol" means any liquid hydrocarbon mixture suitable for the operation of spark-ignition internal combustion engines.

Article 3

Pumps for the sale of motor fuels to the general public dispensing motor fuels not in conformity with Article 1 shall be clearly marked accordingly.

Article 4

The technical annex may be amended in accordance with the procedure laid down in Articles 5 and 6.

Article 5

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- (1) A committee on the adaptation of the technical annex to scientific and technical developments, hereinafter called "the Committee", shall be set up.
- (2) The Committee shall also be empowered to examine substitute fuel components not covered by this directive but without having recourse to the procedure in Article 6.
- (3) The Committee shall consist of representatives of the Member States, with a Commission representative as chairman. It shall be convened by the chairman, either on his own initiative or at the request of the representative of a Member State.
- (4) The Committee shall adopt its own rules of procedure.

Article 6

- (1) Where recourse is had to the procedure laid down in this Article, the Commission representative shall submit to the Committee a draft of the amendment to be made. The Committee shall give its opinion on the draft within a period set by the chairman having regard to the urgency of the matter. Decisions shall be taken by a majority of 45 votes, the votes of the Member States being weighted as provided for in Article 148(2) of the Treaty. The chairman shall not vote.
- (2) The Commission shall adopt the proposed amendments if they are consistent with the opinion of the Committee. Where the proposed amendments are not consistent with the opinion of the Committee, or if no opinion is delivered the Commission may submit to the Council a proposal on the amendments to be made.  
The Council shall decide by a qualified majority. If within three months of the proposal being submitted to it the Council has not acted, the proposed amendments shall be adopted by the Commission.

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Article 7

- (1) Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by ..... they shall forthwith inform the Commission thereof.
- (2) Member States shall communicate to the Commission the texts of the provisions of national law which they have adopted in the field covered by this directive.

Article 8

This Directive is addressed to the Member States.

Done at Brussels,

1982

For the Council

## TECHNICAL ANNEX

### I Definitions

Methanol, ethanol, TBA (tertiary-butyl alcohol), MTBE (methyl tertiary-butyl ether), isopropyl alcohol, secondary butyl alcohols and certain other compounds of the following classes, i.e. alcohols and ethers, all boiling below 205°C are currently acceptable organic oxygenates for use as substitute fuel components and/or stabilizing agents for motor fuels. Mixtures of any of the above compounds are also acceptable. The term "stabilizing agents" in this directive refers to certain of these substances added to assist in the prevention of phase separation of petrol/substitute fuel component blends.

### II Composition of Blends

The blends of petrol and organic oxygenates referred to in Article 1 of this directive shall contain not more than 10 % by volume of organic oxygenates including Methanol and any necessary stabilizing agents. Methanol must not exceed 3 % by volume.

The use of components other than those specified in I above as proprietary additives at concentrations below 0.5 % in total is not affected by this directive.

### III Requirements

Technical specifications for current motor fuels are defined at present in Member States by national standards. Petrol blended with organic oxygenates will have to conform not only with those standards that apply to the types of fuels that the blends are intended to complement or replace, but also with additional specification points relating to certain properties that are peculiar to petrol blended with organic oxygenates, as for example, water tolerance, hygroscopicity, material compatibility and detrimental impurities including organic acid content, copper content etc. which need to be considered by the appropriate standards organisations.