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New Energies & Demand Management
New & Renewable Energy Sources

Energy from Biomass and Waste

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Mandate to CEN on Ethanol as an oxygen extender to gasoline

1. Background

One of the significant measures aimed at increasing the security of energy supply in the EU as well as contributing in meeting the obligation to reduce the emission of greenhouse gases accepted by the EU at Kyoto is the introduction of biofuels for transport. Biofuels must also be seen in the light of the indicative objective of doubling the share of renewable energy from at present 6% to 12% of the gross inland energy consumption as outlined in particular in the Commission's White Paper on Renewable Energy Sources that was endorsed by the Council and the European Parliament¹.

In its Resolution of 18 June 1998² the European Parliament called for an increase in the market share of biofuels to 2% over five years through a package of measures, including tax exemption, financial assistance for the processing industry and the establishment of a compulsory rate of biofuels for oil companies.

Furthermore the European Council meeting at Gothenburg on 15 and 16 June 2001 agreed on a Community strategy for sustainable development consisting in a set of measures, which include the development of biofuels.

In November 2001, the European Commission submitted a Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of biofuels for transport³ for adoption by the co-decision procedure. The Parliament and the Council have amended the Commission's Proposal. The following excerpts are from the agreed position between the Institutions.

In recital (13 & 14) of this Directive it is stated “(13) New types of fuel should conform to recognised technical standards if they are to be accepted to a greater extent by customers and vehicle manufacturers and hence penetrate the market. Technical standards also form the basis for requirements concerning emissions and the monitoring of emissions. New types of fuel may find it difficult to meet current

¹ Communication from the Commission: Energy for the future: Renewable Energy Sources - White Paper for a Community Strategy and Action Plan (COM (97) 599 final) ; Council Resolution of 8 June 1998 on renewable sources of energy (OJ no. C 198, 24.6.1998, p. 1); Resolution of the European Parliament on the above Communication from the Commission (A4-0207/98)

² OJ C 210, 6.7.1998, p. 215.

³ COM(2001)547 final

technical standards, which, to a large extent, have been developed for conventional fossil fuels.

The Commission and standardisation bodies should monitor developments and actively adapt and develop standards, particularly volatility aspects so that new types of fuel can be introduced, whilst maintaining environmental performance requirements.

(14) Bioethanol and biodiesel, when used for vehicles in pure form or as a blend, should comply with the quality standards laid down to ensure optimum engine performance. It is noted that in the case of biodiesel for diesel engines, where the processing option is esterification, the standard prEN 14214 of the European Committee for Standardisation (CEN) on fatty acid methyl esters (FAME) could be applied. Accordingly, the CEN should establish appropriate standards for other transport biofuel products in the European Union”.

In addition and following the same approach recital (27) states: *“Measures should be introduced for rapidly developing the quality standards for the biofuels to be used in the automotive sector, both as pure biofuels and as a blending component in the conventional fuels. Although the biodegradable fraction of waste is a potentially useful source for producing biofuels, the quality standard has to take into account the possible contamination present in the waste to avoid special components damaging the vehicle or causing emissions to deteriorate”.*

It is noted that at present there are two liquid biofuels that are in some use as transport fuels in the various Member States, namely biodiesel and bioethanol. A third one, biomethane derived from biogas is in rather limited use in few countries, and at present its contribution as alternative fuel is very small. For biodiesel EN 14214 has been developed by CEN.

Although the production of bioethanol in the EU has increased significantly in the last few years there are nevertheless no European standards to facilitate its market introduction and to provide the necessary assurances to producers and users of the quality of the pure bioethanol and/or any blend with the fossil fuels.

The above position of the Parliament and the Council and the absence of standards for bioethanol provide the impetus for the Commission to submit this mandate to CEN.

The Directive on the promotion of the use of biofuels for transport was adopted on 08.05.03⁴.

2. Recent Developments

As a result technological advances on engine performance and fuel quality most vehicles currently in circulation in the European Union are capable of using a low biofuel blend without any problem. The most recent technological developments make it possible to use higher percentages of biofuel in the blend. Some countries are already using biofuel blends of 10% and higher. In Sweden the Ford Focus Flexible

⁴ 2003/30/EC

Fuel Vehicle (FFV) that operates with an ethanol 85% blend has been introduced since December 2001 and at present there are actions to introduce this Ford Focus FFV in Spain and Germany.

On 26.07.02 the European Commission sent a letter to CEN proposing the initiation of standardisation work on pure ethanol as well as several blends of ethanol. Following discussions and consultation with TC19/WG21 the Commission decided to initially limit the standardisation work to the most important blends needed by today's markets, and later, as the market develops, to expand to other blends of higher bio-ethanol concentrations.

As part of a research project within the ALTENER Programme a contract has been given to a consortium of organisations (contract AL-2002-41) to initiate the work on standards for bioethanol under the auspices of CEN, and also to develop a work programme for drafting relevant standards. This led to the creation of a Task Force in TC19/WG21 that will undertake the development of the bioethanol standards and to the creation of a CEN/Workshop "Bioethanol" which will undertake the development of a CEN Workshop Agreement (CWA) on an E85%.

3. Reason for giving a mandate to CEN for development of standards on bioethanol

Bioethanol can be produced from either starch or sugars and in the future from lignocellulosics that can be found in a variety of resources such as corn, wheat, sugar beet, straw and woody biomass. In order to achieve the targets of the biofuels directive a stable and reliable supply of bioethanol and biodiesel is mandatory. In practice a widespread production of bioethanol in Europe as well as the eventuality of imports from either Accession or Third Countries necessitates the development and adoption of standards in order to ensure the high quality of fuels sold in the EU market. This implies specifications that are included in commercial transactions for bioethanol as well as for any eventual blend sold in the EU market. There is a need for a method for the guarantee of the biological origin of bioethanol to distinguish it from fossil ethanol..

4. Mandate

CEN is given the mandate to develop, as a first step:

- a) A European Standard for pure bioethanol as tradable commodity when used as a blending component in petrol,
- b) The revision of European Standard EN 228 (unleaded petrol) to reflect the different characteristics of bioethanol blended up to 5vol% in petrol compared to pure hydrocarbon petrol, including the volatility classes, whilst maintaining European regulated environmental performance requirements of petrol,
- c) Given the need to develop an appropriate standard for E85vol% since this biofuel is in use in few markets in the EU, while at the same time recognising that these markets are limited and can't be considered representative across the EU, the Commission gives the mandate to CEN to produce, as a first step, a CEN Workshop Agreement. This CEN Workshop Agreement shall form the basis, as a second step, for a future European Standard E85%.

- d) A European Standard to determine the biological origin of bioethanol to distinguish it from fossil ethanol.

The first two and the fourth European standards mentioned above (a, b and d) shall be presented as a “package”⁵ (i.e. a group of inter-related ENs). The CEN Workshop Agreement on E85 shall be presented as soon as it is ready.

European Standard (a) (pure bioethanol) will only include properties that are also specified in EN 228.

The limits to the properties specified in European Standard (a) (pure bioethanol) must not be more restrictive than the limits applied to the same properties specified in EN 228.

In European Standard (b) (revision to EN 228 unleaded petrol) any new properties added to the existing standard must apply whether the petrol includes bioethanol or not. The limits to the properties of bioethanol blends must not be more restrictive than the limits applied to the same properties specified for pure hydrocarbon petrol.

The work to be conducted will respect the current requirements of the Directive 98/70/EC on the quality of petrol & diesel fuels. If in the course of the work conflicts arise with the requirements in 98/70 then these should be highlighted and can be evaluated in the next review of the directive to be completed before the end of 2005.

CEN will provide the Commission within 6 months after the acceptance of this standardisation mandate with a Workprogramme to be carried out.

The Commission may extend the scope of this mandate to cover other blends of bioethanol as the European market will develop. In addition the Commission may request CEN to transform the E85 Workshop Agreement to a European Standard when the use of the fuel flexible vehicles will become more widespread in the EU.

5. Bodies to be associated.

The elaboration of the standards should be undertaken in co-operation with the broadest possible range of interest groups, including international and European associations. Those invited to contribute to the work should include stakeholders from the relevant industries, ANEC⁶ and ECOS⁷.

6. Execution of the mandate

⁵ In CEN, the aim of a “package” is to avoid circulating EN(s) that cannot be used independently due to lack of supporting standards, quoted or not as reference documents. It is necessary to wait until the last one of these inter-related standards is available before any practical use of the EN(s) and before any withdrawal of national conflicting standards.

⁶ European Association for the Co-ordination of Consumer Representation in Standardisation

⁷ European Environmental Citizens Organisations for Standardisation

- 6.1 CEN must provide the EC with a detailed Workprogramme and a timetable for the adoption of the standards needed to cover the work highlighted in section 4. CEN will execute the Workprogramme agreed by the EC.
- 6.2 The European standards adopted will have to be transposed into national standards and divergent national standards will have to be withdrawn from the catalogues of the Member States' national standardisation bodies within six months of the adoption of the European standards.
- 6.3 The standstill period referred to in Article 7 of Directive 98/34/EC⁸ of 22 June 1998 will commence on acceptance of this standardisation mandate by the CEN.

⁸ OJ L 204 of 21.07.98, p. 37, as amended by Directive 98/48/EC (OJ L 217 of 5/8/98, p. 18).