



**ENGVA REACTION TO:
Public Consultation Exercise
June 2007**

BIOFUEL ISSUES IN THE NEW LEGISLATION ON THE PROMOTION OF RENEWABLE ENERGY

The European Natural Gas Vehicle Association (ENGVA) is pleased to answer the questions posed in the European Commission *Biofuel issues in the new legislation on the promotion of renewable energy* public consultation. A response to the questions is provided below. ENGVA is a not-for-profit non-governmental organisation that advocates the use of natural gas and renewable biomethane as environmentally friendly fuel alternatives to petrol and diesel used in the transportation sector. ENGVA has approximately 200 members representing the natural gas industry, automotive and truck manufacturers, as well as a wide range of equipment and service providers who support the development of natural gas vehicles (NGVs) and methane as a vehicle fuel.

1) How should a biofuel sustainability system be designed?

1.1) Do you think the ‘possible way forward’ described above is feasible?

The proposed possible way forward, aiming to design a biofuel sustainability system is too restrictive in its current format due to its reliance on the use of liquid biofuels. The second bullet in the introductory statement proposes, “A binding 10% target for **the share of biofuels in petrol and diesel** in each Member State in 2020, to be accompanied by a sustainability scheme for biofuels.” This stated approach, that biofuels be *in* petrol and diesel represents a substantial deviation from the approach to *replace* petrol and diesel, which suggests that gaseous biofuels also could be part of the replacement strategy. Mandates for percentage share of liquid biofuels blended in petroleum fuels alone will distort the market for other biofuels such as biogas upgraded to biomethane for vehicle applications.

The proposed ‘possible way forward’ would be a feasible approach to further sustainability in the transport sector if it were to focus more than on just blending liquid biofuels into petroleum fuels. ENGVA believes that the binding target to achieve a 10% share of biofuels in petrol and diesel is faulted because it is aimed almost exclusively at liquid biofuels and does not take into consideration the potential of biogas upgraded to biomethane as a vehicle fuel. (The Biofuels Directive for Renewable Fuels in Transport – 2003/03/EC – ‘does not rule out other alternative such as compressed natural gas [CNG]’ but *emphasizes* ethanol and biodiesel blending.) A renewable fuel like biomethane should equally be taken into account in the EU energy for transport plans. ENGVA encourages the Commission to return to the road map concept outlined in the 2003 *Market Development for Alternative Fuels* report: Replace 10% of the petroleum consumed in the transport sector by 2020 with natural gas; 5-8% with biofuels, including biomethane; and 2% with hydrogen. The new 10% binding target expands upon the 2003-stated policy by the Market Development of Alternative Fuels report to *replace* 5-8% of petroleum in the transport sector with renewable biofuels by 2020. The Target 2020 policy did not specify liquid blending and, thus, kept open the option to use biomethane as part of the strategy.

If the Commission wishes to achieve a binding 20% target for the overall share of renewable energy in 2020, ENGVA advises the Commission to give all forms of renewable energy an equal chance to assure that this goal can realistically be met.

There remains one additional question: Who is to be *bound* to fulfil the target 10%? The 'possible way forward' does not suggest whether the intention is to mandate refineries and fuel suppliers to include biofuels or the fuel distributors. Assuming that the policy would allow for gaseous fuel replacement, would the 'possible way forward' rely only on consumers to bear the responsibility for replacing petroleum fuels with biofuels? Or are governments being bound to produce mandates and incentives to ensure that, in their national market, the target 10% would be fulfilled? The current policy biofuels initiative fails to address this significant issue.

1.2) What do you think the administrative burden of an approach like the 'possible way forward' would be?

Whereas a full estimate on the administrative burden of this approach is not within ENGVA's scope of work, there is no doubt that controlled enforcement of the environmental sustainability criteria will heavily increase the administrative burden on the European and/or national levels. Such work could be assigned to a European agency devoted solely to this goal.

1.3) Please give your general comments on the 'possible way forward', and how it could be implemented. Does it give an adequate level of assurance that biofuels will be sustainably produced? If you think the problem should be tackled in another way, please say how, giving details of the procedures that would be used.

In its current format the 'possible way forward' does not assure that biofuels will be sustainably produced. An increased share of biofuel in fossil fuel is no guarantee to energy security, indigenous fuel production and intelligent agriculture land use in Europe – aspects that need to be taken into account for the larger picture of these products to be sustainable as well.

Biomethane, an alternative fuel that is currently included in the Biofuel Directive by definition only¹, could replace 20-35% of the petroleum used in the European transport sector². In addition, biomethane in vehicles provides an "environmentally closed-loop solution" to a number of existing problems associated with urban and rural waste management, clean water (using the sewage from the water purification process) and clean air (when used in vehicles). Even the residual materials that are left over after the methanization process can be used to replace chemical-based fertilizers for the agricultural industry and a variety of other purposes. If the EU, in the short or medium term should use part of the total arable land resources for production of biomass used as a base for biofuel production, biomethane also offers a unique advantage thanks to much higher fuel potential per hectare of arable land than other competing first or second generation biofuels³.

¹ European Union. *Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels and other renewable fuels for transport*. Official Journal of the European Union. L123/42. 17 May 2003.

² National reports from e.g. the Austrian Umweltbundesministerium, the German Wuppertal Institute and the Swedish Gas Centre have indicated potentials of this magnitude. In the EU-sponsored Altener BIOCOMM project report on p. 15 you will find biomethane fuel potentials of 90 million tons of oil equivalent, corresponding with some 30% of the transportation fuel requirement (see Fachverband Biogas in the bibliography). In addition, the BIOFRAC report (see Biofuels Research Advisory Council in the bibliography) provides an updated view on the total availability of biomass, which can be used for biofuel production. Applying net conversion yields to these numbers, it is possible to show that biomethane can in fact have an even higher potential than 35%.

³ European Environmental Agency. *How much bioenergy can Europe produce without harming the environment?*. EEA report no 7/2006. Copenhagen 2006.

- 1.4) **Carbon stock differences between land uses would be taken into account under criterion 2. Should they also be taken into account under criterion 1? If so, what method should be used to determine how the land in question would have been used if it had not been used to produce raw material for biofuels?**
- 1.5) **As described in the 'possible way forward', criterion 3 focuses on land uses associated with exceptional biodiversity. Should the criterion be extended to apply to land that is adjacent to land uses associated with exceptional biodiversity? If so, why? How could this land be defined?**
- 1.6) **How could the term 'exceptional biodiversity' (in criterion 3) be defined in a way that is scientifically based, transparent and non-discriminatory?**

Questions 1.4, 1.5 and 1.6 fall outside the scope of ENGVA's field of work. The ENGVA response, therefore, contains only two remarks concerning information (in box 1 and box 2) about the possible environmental sustainability criteria for biofuels and the evidence showing that environmental sustainability criteria are respected

Land use: In addition from taking precautions towards possible reductions in carbon stocks and biodiversity loss, the requirements for biofuel raw materials should not lead to negative economic impact on the food chain, e.g. through the increase of commodity prices as a consequence of reduced land use for commodities such as corn or sugar cane, principle ingredients used for liquid biofuel production.

Establishing bi-lateral or multilateral agreements with biofuel-producing countries to prevent negative impacts on land use: A substantial amount of liquid biofuels used in Europe would have to come from outside the European Union if the 10% binding targets are to be met. A binding target on biofuels should not translate into increased reliance on imported energy sources, which would violate energy policy principles (and goals) that Europe be less reliant on imported energy sources in order to improve its 'energy security.'

2) How should overall effects on land use be monitored?

2.1) Please give your comments on the 'possible way forward' described above. If you think the problem should be tackled differently, please say how.

Before considering land use conversion and its related problems, ENGVA advises the European Commission to consider the fuel options that solve the existing environmental problems and that will not have a negative impact on land use or create new environmental problems, as is likely with the proposed 10% binding targets to blend biofuels in petroleum fuels. The opportunity to create a waste-to-energy technology cycle (urban or agricultural waste) instead of using arable land should be the first option favoured.

2.2) Do you think it is possible to link indirect land use effects to individual consignments of biofuel? If so, please say how.

Question 2.2. lies outside the scope of work done by ENGVA.

3) How should the use of second-generation biofuels be encouraged?

3.1) How should second-generation biofuels be defined? Should the definition be based on:

- a) **the type of raw materials from which biofuels are made (e.g. biofuel from cellulosic material),**

- b) the type of technology used to produce the biofuel, e.g. biofuel produced using a production technique that is capable of handling cellulosic material),
- c) other criteria (please give details).

The definition(s) of second-generation biofuels should be based on energy conversion efficiency, in which the efficiency should be higher than it is today, hence second generation. The required energy conversion efficiency could be reached through the use of improved technology, better use of existing feedstock or improvements in the production processes. Bioethanol and biodiesel production is not yet efficient; biomethane conversion efficiency already exceeds those for liquid biofuels and may, indeed, be higher than second generation liquid biofuels conversion processes.

3.2) Please give your comments in the 'possible way forward' described above. If you think the problem should be tackled in a different way, please say how.

The possible way forward for gaseous fuels should give precedence to market forces – e.g. support of a European wide refuelling infrastructure.

3.4) Should second-generation biofuels only be able to benefit from these advantages if they also achieve a defined level of greenhouse gas savings?

Biofuels should indeed only be able to benefit from subsidies and other advantages if they also achieve a defined level of greenhouse gas savings, but one should also consider their benefits on other regulated and non-regulated vehicle emissions. Global warming is not the only environmental issue that can be addressed by biofuels and, in particular, biogas upgraded to biomethane for vehicle applications.

4) What further action is needed to make it possible to achieve a 10% biofuel share?

4.1) Should the legislation include measures to ensure that diesel containing 10% biodiesel (by volume) can be placed on the market, and is in fact placed on the market?

4.2) Should the legislation include measures to encourage the use of ethanol and biodiesel in high blends? If so, what?

Available supplies of liquid biofuels from a cost efficiency point of view are best used as low-blend ingredients in gasoline and diesel (currently up to 5% by volume, in the future perhaps twice as much). Why spend money on facilitating the use of higher blends if further liquid biofuels supplies are not available?

4.3) Should the legislation include measures to encourage the use of biomethane, methanol and DME in transport? If so, what?

With methanol and DME being costly to produce and challenging to enter into the fuel distribution network, biomethane is the only additional biofuel option that ENGVA favours to be included in the legislation. ENGVA proposes the following legislative measures:

- A return to and improvement of the proposed Target 2020 approach by introducing a binding 10% target for fossil fuel *replacement* by biofuels and including biomethane.
- Further research and development support for enhanced conversion efficiency technologies that also include second and future generation of biogas production. In addition to the already very efficient production of biomethane via anaerobic treatment of various organic waste streams (also crops if available) the next generation of biomethane also includes gasification of forest waste. The technology already has been proven in pilot plants and a first major

installation is planned for 2012 in Göteborg, Sweden. Not less than 70% of the energy contents are recovered as pure biomethane, 2% used for district heating purposes and only 10% consumed in the production process – an unparalleled degree of efficiency.

- Encourage or provide incentives to local and regional governments to create waste-to-energy infrastructures to tackle multiple societal problems with one integrated multi-faceted, closed-loop solution, specifically aimed at biogas and biomethane production.

< 4.4. seems to be missing in the EU paper >

4.5) Should the legislation ask the Commission to review, by a given date, whether it is possible to be confident that the 10% target can be achieved through:

- a) rules that allow 10% blending of ethanol in ordinary petrol, plus
- b) rules that allow 10% blending by volume of biodiesel in ordinary diesel, plus
- c) the four options listed under 'other options for solving the problem';

If so, what should be the date? If the review were to conclude that the target is unlikely to be met, what action should be taken by the Commission?

A review of whether it is possible to be confident that the proposed 10% target can be achieved should be carried out before any legislation with this aim is implemented. There needs to be clarity on the down-stream economic consequences of such measures before it goes into force. A binding 10% share of biofuels in petrol and diesel will have effects on energy security, food provision and rural land use. In addition, the European Union will enter into competition with other regions and countries that also aim to mix biofuels into petroleum-based fuels. However, it is unclear what the global consequences of increased biofuel demand on worldwide land use will be. (The analysis provided by the 2006 report, "Biofuels in the European Union: A Vision for 2030 and beyond,[Biofrac] should be revisited!).

In addition, a thorough discussion of renewable fuel certificates based on energy units supplied would also be very beneficial to the current debate. Assume a country using 100 Twh annually of road fuels and a renewable target of 10 %. The target then is to provide proof that at least 10 TWh of biofuels have been added into the total fuel supplied for use in vehicles. It should not really matter whether this fuel consisted of bioethanol, biodiesel, or biomethane as long as the total reaches at least 10 TWh. Market forces would help to ensure that the lowest cost alternative would be most widely commercialized. . ENGVA advocates that all biofuel deliveries used in the road transportation sector are to be awarded tradable certificates.

Consequently, ENGVA objects to a quick transition to liquid biofuels, especially if this transition takes place at the expense of gaseous biofuels. In doing so the European Community ignores the more immediate and high potential solutions to the problems named above.

4.6) More generally, what role should taxation play in the promotion of biofuels (considering different situations such as low blends, high blends and second-generation biofuels?)

Fiscal incentives can play a positive role in increasing the market share of renewable fuels and alternative fuel vehicles. Any positive taxation exemptions should be focused on the fuel, the vehicle and/or the use of the vehicle. Taxation should also be in accordance with the market share of the fuel: The higher the share, the less incentive is needed.

Conclusion

ENGVA, like the European Commission, encourages the replacement of petroleum fuels with more sustainable alternatives along the lines of the 2003 *Market Development for Alternative Fuels* report. EU policy makers should embrace a long term, holistic view in moving towards sustainable transport and choose those alternative fuel options that provide the consumer with maximum efficiency for the lowest price and society at large with a maximum of environmental benefits. ENGVA, therefore, encourages the Commission to follow the direction of the December 2006 *Morgan Report on Sustainable, Competitive and Secure Policy*. Biomethane should be recognised as a gaseous biofuel that is economical, abundantly available from various feedstock and makes a contribution to the problems associated with waste management, climate control and energy security.

For further information, clarifications or input, please contact:

Dr. Jeffrey M. Seisler

Executive Director

European Natural Gas Vehicle Association (ENGVA)

Kruisweg 813A

2132 NG Hoofddorp

The Netherlands

Tel: +31235543050

Fax: +31235579065

Email: info@engva.nl

Visit: www.engva.org

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