

Response from General Motors to the public consultation from the Energy and Transport Directorate-General, European Commission on biofuel issues in the new legislation on the promotion of renewable energy

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1. How should a biofuel sustainability system be designed?

We recognize that there are many questions about the sustainability of biofuels and that these concerns can be addressed through a simple, effective sustainability system. To ensure that biofuels are not at a competitive disadvantage versus other fuels, a fair, fuel-neutral approach would be to require the same certification requirements for all fuels. To avoid fragmentation of the EU biofuels market, the Commission is advised to make sure that harmonized provisions do not allow individual Member States to set divergent criteria. In order for a sustainability system to be both efficient and effective, the ideal system is to be designed in such a way that it respects a number of criteria, amongst others:

(i.) Simplicity and stringency :

If the system is too complex and has too many requirements, it will only result in slowing down the development of biofuels, contrary to the stated policy objective. Similarly, the stringency in the criteria should not be set in a way to "kill" the so called first generation of biofuels but should also act to speed up the widespread commercialization of second generation biofuels.

(ii.) Transparency :

To be acceptable and accepted, the system should be based on clear rules that cannot be interpreted differently according to Member State and interest group.

(iii.) Timeliness and stability :

A sustainability system should be adopted quickly, as the Commission recognized that the current 5.75% target by 2010 is likely not to be achieved and that with a current share of approx. 2% we are very far of the newly proposed target of 10%. Automakers today are offering vehicles which require much greater ability of E85 and CNG. Customers are interested in buying these vehicles – but the lack of availability of the necessary fuels in the marketplace is a significant impediment to purchase. These vehicles have the potential to significantly reduce CO₂ emissions on a source to wheels basis in the near term with even greater CO₂ reductions as soon as second generation biofuels are made available. Accordingly, it is critical that the EU move quickly to make the necessary fuels much more widely available. Various stakeholders need a legal framework before investing. A longer term stability of the system is required for the same reason.

(iv.) Neutrality :

Sustainability criteria should be independent from country of origin of the feedstock and from the type of feedstock and as above should apply equally to petroleum-based fuels as to biofuels.

The "possible way forward":

GM supports in broad terms the proposed way forward as a constructive effort to develop the principles of a realistic scheme that will ensure the sustainability of biofuels (Q.1.1).

Taking into consideration the criteria stated above it is GM Europe' opinion that:

(i.) A two step approach makes a lot of sense as it would allow for a quicker introduction of the system. However, with reference to the stability criteria, adequate leadtimes should be given before reviewing and possibly refining the system. It is critical that these leadtimes do not further impede the introduction of biofuels into the market.

(ii.) GM supports the idea of using default values for net greenhouse gas savings based upon the JRC / EUCAR / CONCAWE well to wheel study as this study was not only endorsed by the European Commission and with EUCAR and CONCAWE participation could rely on the expertise of both carmakers and fuel providers, but is also widely recognized as the most authoritative on the subject.

(iii.) GM supports the inclusion of the 3 proposed criteria. For simplification purpose we suggest to

group criteria 2 and 3 as a common “land-use” criterion.

The sustainability criteria must be valid and evidenced in the EU27 in a uniform way. National schemes to measure greenhouse gas impacts should be avoided as they will inevitably result in market distortion and fragmentation. Bilateral agreements with third countries outside the EU should be such that Member States cannot deviate. The automotive industry has no specific expertise on land use and biodiversity (Q1.5 and 1.6) and defers to others’ expertise in these areas.

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

The automotive industry has no specific expertise on this topic but we support the idea of the Commission reporting regularly on this topic. However, we believe that these should be equal to any other comparable effort in Europe. The Commission should not apply overly stringent processes in this case which would further slow down biofuel production

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

The rapid development and early commercialization of biofuels produced in a more sustainable way that maximize greenhouse gas savings on a source-to-wheels basis, and of a quality that makes them suitable for use in cars should be a key priority of the EU. We note that second generation cellulosic ethanol plants at demonstration scale have already been in operation in other countries for a number of years, meaning that establishment of commercial scale cellulosic ethanol plants in Europe should not be far off from a technological perspective. And while so-called “second generation” biofuels will offer even more sustainable pathways, there are many current pathways that are already more sustainable than traditional energy sources and therefore should be encouraged now, even while the commercialization of second-generation biofuels is encouraged and accelerated. Fuel taxation policy should recognize the source to tank CO₂ emissions of the fuels and tax accordingly. This would act as a significant incentive for customers to consider lower CO₂ fuel solutions and spur the development of second generation biofuels while partially offsetting anticipated higher initial production costs. While it is recognized that taxation policy is a Member State competence, we view this strategy as an environmental policy that should be implemented at the European level to avoid further market fragmentation – or at a minimum, strong coordination work needs to take place with the Member States for a coherent internal market policy in this area. While it is recognized that there is considerable variation in the source to tank CO₂ emissions based on refining processes, logistics requirements, etc. we ask the Commission to establish factors for each general type of biofuels which approximate the average CO₂ emissions for that fuel type on a source to tank basis and which could be utilized in determining appropriate and consistent taxation factors across the Member States.

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

As previously indicated, GM is supportive of an increased usage of biofuels as a cost effective way to reduce greenhouse gas emissions from passenger vehicles and as a key element of the CO₂ Policy for Cars. While the consultation paper says “the easiest way to get biofuels into the market is by blending them directly with ordinary fuel and using them in low blends in ordinary vehicles”, we believe that this is an overly simplistic view. There are significant challenges in terms of vehicle technology capability in terms of extending low blends AND there is a significant need to ensure a widespread supply of high blends (particularly E85 and biogas) to meet current as well as future demand for dedicated vehicles. Therefore, the biofuel policy needs to have two key elements: 1) a low blend strategy, and 2) High blend strategy – in order to achieve the maximum potential reduction in CO₂ emissions from passenger cars on a costeffective basis within the near term.

Q 4.1 Low blends

Current regulations (fuel quality directive 98/70EC; EN228 and EN590) allows for the direct blending of ethanol (replacing petrol) and biodiesel (replacing diesel) to 5 % by volume (E5 and B5). Vehicle manufacturers such as GM have invested in the necessary technologies to enable all our vehicles to operate on these vehicles – but the Commission has estimated in its biofuels progress report that the market share at the end of 2005 was only 1%. The first priority to achieve a higher biofuel share should therefore be for the EU and its Member States to ensure widespread availability of E5/B5 to fully utilize the technology cost which has already been expended by vehicle manufacturers. Moving the next step to E10/B10 could also be accomplished under certain conditions – and again offers the opportunity to significantly reduce CO₂ emissions from passenger cars provided that a coordinated

policy is established that addresses vehicle technology and fuel availability on a complementary timetable. Vehicles designed for the European market were not designed and validated to operate on more than 5% biofuels. Higher blends require additional changes to the vehicles to enable them to operate for the life of the vehicle, including enhancements to the fuel system and technologies to address aftertreatment systems. To ensure that the existing vehicle fleet can continue to function as designed without undue cost to the customer and failures of current vehicles, a transitional strategy which assures the continued widespread supply of E5/B5 must be available for the life of vehicles in the existing vehicle parc. On spark ignited (gasoline) engines, GM is willing to add technology to allow petrol vehicles to run on E10 provided that:

- (i) sufficient leadtimes for transition are provided for vehicle manufacturers,
- (ii) the E10 fuels are distributed through clearly marked separate pumps to avoid misfuelling,
- (iii) at least one E5 petrol grade is kept for a transitional period so that customers do not experience failure or undue repair costs for current vehicles,
- (iv) an EU fuel quality standard exists to ensure the fuel is of a sufficient quality to allow sensitive vehicle emissions systems to operate properly,
- (v) a plan exists to make the new fuel widely available to ensure that the additional cost to automakers and their customers is met by full availability of the requisite fuels.

As a further option, GM supports the enlarged use of ETBE in petrol within the valid specification. For ETBE, shares above 10% are possible without decreasing petrol fuel quality.

For diesel engines, there are significant challenges created by 10% biodiesel blends. Unlike other fuels, the quality and durability challenges posed by a blend with 10% of biodiesel are such that this requires further investigation – and certainly if the Community wishes to proceed in this direction, it must ensure that B10 fuels meet the specific exacting quality standards required to operate sophisticated vehicle equipment by establishing a rigorous quality standard.

A more favourable option in terms of maintaining diesel fuel quality is the application of hydrogenated vegetable oils. While we understand the sustainability concerns related to a wider application of these processes, we also do believe that these processes merit further consideration - also in view that the Commission is planning to establish sustainability criteria. Looking further ahead, blending with synthetic fuels from biomass to liquid fuels will provide for high quality diesel fuel blends, that could also be blended in quantities above 10% by volume. In the light of the upcoming more stringent Euro 5/6 emission standards, if the evolution to the higher biofuel blends is to be successful, it is essential for automakers that this happens in a coordinated way at a European level (no national standards) and that, again, the widespread availability of such fuels through the EU is ensured through adequate policies. Accordingly, introduction of B10 should only be done on the following conditions:

- (i) sufficient leadtimes for transition are given to enable vehicle manufacturers to phase in the necessary vehicle technology,
- (ii) the B10 fuels are distributed through clearly marked separate pumps to avoid misfuelling,
- (iii) at least one B5 diesel grade is widely available for a transitional period to enable consumers to continue to access the B5 fuels for which their current vehicles are designed,
- (iv) an EU fuel quality standard exists (recognizing the considerable variability in diesel fuels and the risk to emission systems an diesel particulate filters of inappropriate fuel grades), and
- (v) a plan exists to make the new fuel widely available to ensure that the additional cost to automakers and their customers is warranted.

Q 4.2./4.3. High blend and neat fuel options

As indicated, greater use of these fuels would enhance energy diversity, energy independence, and add value to agricultural sector. GM believes that the environment and the policies of the EU are best served by using cost effective technologies and fuels that are available now. Bioethanol and biogas offer significantly lower CO₂ emissions from passenger cars on a source to wheels basis. The vehicle

technology to use these fuels is available and cost-effective. Solutions, such as E85, come at a technology cost below € 1000 and CO₂ reductions of over 70%, depending on the pathway, can be achieved compared to over €5000 for hybrid technology which enables fuel economy improvements of only 25% over conventional gasoline powertrains. To exploit these options, dedicated vehicle types are necessary. As an example, GM has been successfully marketing dedicated (monovalent) compressed natural gas vehicles. These have been optimized to run on CNG, fully using the fuel's potential. They are also capable of running on biogas (bio-methane) without any change. According to the JRC WTW-study, biogas is a very favourable pathway in terms of CO₂ emissions reduction and cost efficiency. What is needed are policies to ensure widespread availability of refueling infrastructure and to encourage the fuel industry to move rapidly to low CO₂ second generation biofuels. GM notes the successful Swedish model in moving very quickly to have widespread availability of high blends of E85 and biogas and a variety of vehicles that can operate on these fuels widely in the market. GM encourages the Commission to consider the key elements of this successful strategy in developing a pan-European strategy. GM notes that wider availability of E85 and biogas could be an important element of the CO₂ Policy for Cars. While we do not expect that E85 and biogas will represent the levels of current market penetration enjoyed by gasoline and diesel, we do believe that its proportion can be increased significantly. It is anticipated that the CO₂ Policy for Cars will result in even higher penetration for diesel. Some studies suggest that low levels of investment in refining capacity and increasing demand will cause a significant increase in diesel prices which could have negative economic impacts. Ensuring a greater diversity of energy supply through the greater availability of high blends could be an important strategy to contain further increases in fuel prices for transportation fuels with resulting negative economic impacts.

A supportive policy framework should contain elements to stimulate both supply and demand through:

- 1) A strategy to ensure that there is European-wide significant availability of the high blend fuels to provide an unfragmented internal market and allow manufacturers to make the vehicles available on a pan-European basis, and for consumers to obtain the necessary fuels wherever they travel within the EU;
- 2) Consumer Incentives, such as reduction of registration / circulation Tax, fuel tax based on source-to-tank CO₂ emissions and exemptions from congestion and parking charges, that reflect the significant CO₂ reductions available on a source to wheels basis and send strong signals to consumers to make the lower CO₂ choices
- 3) The CO₂ Policy for Cars should provide credits reflecting the source to wheels CO₂ reductions available from these vehicles. This could be done, for example, by adjusting the fuel economy rating for these vehicles by a factor reflecting the source to wheels reductions in the existing European CO₂ monitoring process. This would encourage vehicle manufacturers to make the necessary vehicles widely available in the market.
- 4) To ensure a consistent internal market, fuel specifications need to be applied in a harmonized way all across Europe. National policies that prevent deployment of specific fuels and which are part of this policy should be challenged by the Commission.

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

The Commission should in the first place design its legislative proposal in such a way that it is confident that the target will be met. When elaborating this proposal, it is taken for granted that the Commission will have in mind the challenges of meeting the current 5.75% 2010 target. The very diverse policies put in place (or lack thereof) in each Member State and the resulting major differences in achievement should also encourage the Commission to put in place a system that would harmonize policies and enhance the predictability of the outcome. Changing rules on low fuel blends and developing a policy for high blends and new fuel types have far reaching consequences: carmakers and fuel providers make strategic choices that entail capital, resources and time, consumers need to adapt to the changes etc. Carmakers cannot afford to continue to develop and bring to market a wide range of technologies if policy makers do not set "the rules of the game" in a longer term perspective. We trust the European Commission and the European Union, through Council and Parliament, will keep this in mind. In view of leadtimes for fuel standardization,

vehicle development and vehicle life time and the 2020 horizon a “midterm” review looks appropriate. It cannot be anticipated which actions, if any, should be taken by the Commission then.

Q 4.6. Role of taxation GM regards car and alternative fuel taxation as significant policy levers in steering the new vehicle demand to fuel-efficient technologies and consequently to achieve sizeable CO₂ reductions. Linking taxation and alternative fuels to CO₂ emissions offers an opportunity to reduce transport related CO₂ emissions immediately by sending the right signal to customers to go for the lowest CO₂ option. This will also serve to drive customer awareness on the CO₂ issue

Summary

In setting the new biofuels policy, the EU has a significant opportunity and responsibility to establish a low blend and a high blend strategy that will match cost-effective vehicle technologies with complementary low-CO₂ biofuels to achieve a significant reduction in CO₂ emissions from passenger cars in the very near term using available cost-effective technology.

Conversely, if the EU chooses not to proceed in this direction, it needs to compensate automakers for its refusal to utilize this suite of low-cost available options by adjusting the CO₂ targets upwards significantly reflecting its decision to compel automakers to use less effective, higher cost options.