The Role for Biofuels.

Just as vehicle technologies are evolving, so too are fuel technologies. The key measure of performance for fuel technology should be grams of CO_2 emitted per kiloJoule of energy released. The CO_2 emissions per kiloJoule should be calculated on the basis of total CO_2 emissions in the value chain. Within that context, biofuels have an important contribution to make in reducing CO_2 emissions and in reducing Europe's dependency on imported energy.

Biofuels which are fully compatible with the existing car parc and fuel distribution infrastructure will ultimately offer even more potential than those which have technical limitations on their application. However, such fuels are some years away.

In the meantime, to start taking advantage of presently available biofuels, in 2001 Ford recognised the opportunity and support for renewable fuels in the Swedish market and launched the Ford Focus Flexi-Fuel Vehicle. This car can run on a high-blend bio-ethanol (E85, i.e. 85% ethanol, 15% petrol) or conventional petrol or any combination of the two fuels. This effectively future-proofs the technology and enables flexibility with the future bio-ethanol content of petrol. In 2006, 85% of all the Focus vehicles sold in Sweden were FFVs, where a total over 26,000 FFVs have been sold and more than 60% of FFVs are bought by retail customers. By 2008 we project 25% of new vehicles sold in Sweden will be capable of running on E85. In 2007 new car sales in Brazil are likely to rise to more than 80% FFVs.

Unlike other bi-fuel technologies which require two fuel tanks there are no such compromises for the FFV customer. FFV's give at least the same power output as their conventionally fuelled counterparts, with no loss of acceleration or top speed, although as ethanol contains less energy than petrol, the vehicle will give a proportionally reduced range when using this fuel. All this is achieved at a product cost broadly comparable with mainstream petrol fuelled products.

Specific Questions.

Ford Motor Company has responded to those questions which lie within our sphere of expertise and knowledge.

However, we also recognize that that there are concerns about the impact of the production of certain biofuel feedstocks. These concerns must be addressed and Ford fully supports the development of internationally agreed standards and mechanisms to encourage and ensure the sustainable production of biofuels.

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

Question 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 (for example, "biofuel

from cellulosic material")?
b) the type of technology used to produce the biofuel (for example, "biofuels produced using a production technique that is capable of handling cellulosic material")?
c) other criteria (please give details)?

Response:
Support for biofuels must be based on life-cycle carbon emission per kiloJoule of energy released, and conventional fuels should also be evaluated from a life-cycle perspective to ensure a level playing field.
It is likely that specific second generation biofuel technologies such as the use of cellulosic material will give enhanced benefits, but to ensure the best overall outcome, the criteria for support should not be technology, product or process specific, but instead consider performance in terms of life-cycle carbon emission per kiloJoule of energy released. Any attempts to reward second generation fuels simply based on their feedstock or production technology may retard the development of more efficient first generation fuels.

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

Response:
As discussed in the answer to 3.1, we believe that support for biofuels must be based on life-cycle carbon emission per kiloJoule of energy released. This does not require definition or recognition of different 'generations' of biofuels, but simply an understanding of a particular fuels overall carbon emissions performance.

Recognising that the biofuels market and its technology is still developing, it may be necessary to provide or facilitate other assistance. These could include incentives such as Enhanced Capital Allowances and grant support for research and development to encourage both investment in the production facilities for such fuels, and the development of new products.

Question 3.3
Should second-generation biofuels only be able to benefit from these advantages if they also achieve a defined level of greenhouse gas savings?

Response:
Adopting the approach suggested in the answer to 3.1 would benefit those fuels which gave the best overall outcome. If a first-generation fuel were capable of providing the same life-cycle carbon emissions as a second generation, it would be perverse to encourage one fuel technology to the detriment of the other.

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

Question 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?

Response:

Achieving a target of 10% substitution of mineral diesel by that derived from biomass could be achieved by a combination of means.

Alternative approaches to producing diesel fuel from biomass should be recognized and encouraged. These include the use of vegetable and similar oils for hydrotreatment and co-processing within refineries, or the production of BTL 'synthetic diesel'. Such processes provide a high quality diesel fuel that would be welcomed as a blend component by the automotive industry. These could be used incrementally with the existing 5% maximum biodiesel fuel, giving, for instance, a 10% biocontent diesel that contained 5% biodiesel plus 5% hydrotreated vegetable oil. In fact, these high quality products offer the possibility of diesel blends containing more than 10% bio-derived content without leading to technical concerns.

Another possibility would be to continue with the existing 5% maximum biodiesel product for general use, whilst encouraging the use of higher blends such as 30% blend for specific operators such as captive (return to base) fleets. This has the advantage of a smaller number of vehicles using a proportionally large volume of biodiesel.

With the correct market conditions and encouragement, it should be possible to ensure the 10% target is met.

If the road diesel fuel standard EN590 is amended to permit the biodiesel content to increase to 10% (known as B10), there will need to be significant work to define and validate this new fuel. There are concerns about a range of issues with this fuel, both from the fuel supply and vehicle operation perspectives, and it will be essential that a suitable fuel specification de developed. More particularly, issues with the compatibility of the existing vehicle parc with B10 are now well documented, most notably for those equipped with diesel exhaust particulate filters. We therefore believe it will be necessary to identify B10 at filling stations. This will enable us to direct the owners of future products that are B10 compatible towards using such a fuel, whilst providing guidance for those customers whose vehicles may not be suitable. Fuels meeting the existing requirements of EN590, including a 5% biodiesel limit, should continue to be marketed for the existing fleet.

Question 4.2:

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

Response:

Ford believes that fuels which are compatible with the existing car parc and fuel distribution infrastructure will ultimately offer even more potential than those which are incompatible but recognize that these fuels are not yet available.

Policy and incentive frameworks need to encourage early adopters of biofuels that create awareness, education and choice such as E85, but also be alive to the need to avoid exclusive emphasis on prescriptive forms of biofuel, and encourage alternatives to compete on equal, CO2 performance based terms with the blended ethanol technology. A balance needs to be struck between providing a stable fiscal and incentive environment for biofuel development and the encouragement of more productive emerging options. This will represent an emerging task for policy makers and other stakeholders in the transport sector.

However, the opportunity should not be missed to raise the awareness of climate change, CO2 and the need to change personal behaviours through the market availability of high blend biofuels such as E85. While we acknowledge the wide-ranging impact of low blend biofuels across the European car parc, the low carbon message is largely invisible to the customer.

High blend biofuels, such as E85, require substantial financial support if they are to become attractive to the consumer. Governments should be encouraged to put such support in place, recognising that on the basis of energy content, carbon content or carbon emitted high blend biofuels are often financially penalised when compared to other road transport fuels, gas or electricity.

Question 4.3:

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

Response:

Gaseous / near gaseous biofuels such as biomethane and DME may have a part to play in specific applications, but we consider those biofuels which are suitable as extenders to the conventional road fuels, i.e. ethanol and bio-derived diesel, are likely to offer the greatest immediate market penetration and benefits.

Methanol is a much more aggressive fuel than ethanol. Compatibility with the existing vehicle parc would be a major issue, and developing durable, compatible vehicles would be a considerable task.

The impact on evaporative emissions even at low blends would be significant due to both its high permeability and its effect of greatly increasing vapour pressure in petrol blends at low percentages.

Based on current knowledge, we believe that the use of methanol in the general motor pool should be actively discouraged.

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

Response:
The development of new products by the automobile industry requires a considerable lead time, and once a vehicle enters the market, it is likely to be in circulation for many years.
After a vehicle has entered use, it will not be possible to adapt it should the market fuel change. It is therefore necessary that the fuel that a vehicle would be likely to encounter within its life is defined in advance. If new fuel specifications are necessary, they should be defined well in advance, giving the maximum possible lead time before implementation. There must also be recognition that such fuels are unlikely to be backward-compatible with existing vehicles.

Whilst it may be prudent for the Commission to be given the opportunity to review interim progress on achieving the 10% target, this should not be viewed as an opportunity to change the amount of ethanol or biodiesel permitted within ordinary petrol or diesel. However, listed amongst the "other options for solving the problem", greater use of ETBE, BTL and other new types of biofuel are mentioned. Increased use of these materials may be possible to help address any shortfall versus the target.

Question 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)?

Response:
Biofuels are generally more expensive to produce and usually have a lower energy content than conventional mineral oil derived fuels. At the lower concentrations permitted within current petrol and diesel, the change in fuel consumption is likely to be unnoticed by all except the most diligent operator. However, high blend biofuels tend to suffer from a noticeably reduced range and it will be necessary to encourage use of such fuels by providing a means to offset this effect. We would therefore recommend that the fuel element of cost of ownership be rendered neutral for high biofuel blends. This should be in the form of reduced fuel duty for high blend fuels.