

QUESTIONS AND SE POSITION

The first four questions aim to provide grounds for mapping and evaluating the technology and market potential of both conventional but increasingly fuel-efficient vehicles and of alternative powertrains (electric and hydrogen). In particular, the Commission wishes to identify the opportunities and risks associated with the development of the mass market for the electric and hydrogen vehicles. These questions are without prejudice to the ongoing work in preparing for the revision of Regulation (EC) No 443/2009 in accordance with Article 13(5) of that Regulation. Answers to these questions provide the rationale for public policy action that is tackled by the last two questions.

1. **Should the vision agreed in the CARS 21 mid-term review be adjusted? (i.e. 2020 perspective of improved combustion engine's market dominance combined with growing market penetration of electric and hydrogen vehicles and hybridisation conceived as the bridging technology and 2050 perspective of transport decarbonisation)**

SE agrees with the CARS-21 view at large. However SE having natural possibilities to decarbonise transports faster has set a national goal of 2030, being largely independent of fossil fuels at that time. SE also see a bigger role for the plug-in hybrid vehicles in combination with CO2 neutral fuels.

2. **What is the potential of different clean automotive propulsion technologies (improved fuel efficiency, hybridisation and alternative powertrains) for contributing to decarbonisation objective in the short, medium and long term?**

All these methodologies has to be applied simultaneously and it is difficult and not important to quantify each one, as all are needed to cope with cost, fuel supply and ease of use.

What is the decarbonisation potential of the complementary measures in the short, medium and long term (e.g. guidelines on eco-driving, application of Intelligent Transport Systems) and how reliable are these potentials?

The complementary measures are also needed as part of making the transport system more efficient, but will not solve the CO2 problem on their own.

3. **What are the implications of new propulsion technologies in a lifecycle analysis perspective as regards vehicles, and in a well-to-wheel perspective as regards energy supply chains?**

The most important implication of the electric drivetrain (both battery and fuel cell based) is the ability to open up the energy resource base for greater flexibility and efficiency in a well to wheel perspective.

What are the resource implications in introducing innovative propulsion technologies?

The extra electricity production needed to energise the road transport is small and considering the CO₂ cap for European electricity production the extra electricity will by definition be CO₂-neutral. Given the introduction rates the major challenge will probably be production of CO₂-neutral fuels for the combustion engines in hybrid vehicles (and remaining fleet of combustion engine vehicles) in the medium and long term. An other resource issue is the sustainable supply of raw materials for batteries. There are many relevant aspects of sustainability to be considered.

- 4. What are the state of play and the future scenarios of technological developments in alternative powertrains (electric and hydrogen) and their market penetration? What are major risks and opportunities associated for different stakeholders? What will be the economic, societal, employment and environmental impacts brought by these developments?**

(complex question)

In the long term fossil fuels will be marginalised and electricity and synthetic fuels will dominate. The speed of this change is hard to predict. The rapid growing vehicle fleets of Asia put a pressure on oil and biofuel supply and prices and there are clear indications that China is pursuing electric vehicle technology. This may lead to, and already are to some extent, a technology race between the car industry in the US, Europe and Asia. As the vehicle industry is a driver for industrial development this may have vast impact on the future economic, societal, employment and environmental development of Europe.

- 5. How can a trade-off situation be avoided where electrifying the power train would reduce or reverse improvements made in conventional technologies in the framework of existing and upcoming legislation on the CO₂ emissions of road vehicles?**

Understanding this as a risk of the car manufacturers not doing their best with the combustion technology if electric vehicles is successful and thereby make room for “gas guzzlers” within the new CO₂ limitations, this might be counterfeited by a clear strategy of tightening the regulation as electric vehicles enters the scene.

- 6. What actions should be best taken at regional/ national /European or international level to promote technology development and market uptake of alternative powertrains (electric and hydrogen)?**

Different regions and nations have different conditions and possibilities. It will be difficult to find one solution that fits for all. However it is clear that demonstrations, incentives and other actions to promote the introduction of alternative power trains must be in line with the rules of the common market, competitive neutral and harmonised as far as possible. If specific actions are deemed necessary to overcome barriers for new technologies, these actions must be minimal and phased-out within a fixed time.

On the EU level, the regulation to reduce CO₂ emissions from passenger cars is a key driver that needs to be developed further in the medium and long term.

