

FSK Technology Research

Presentation for CO2 Chem Fuels Cluster Meeting

Cranfield University 12 March 2014

UK Department of Transport

Advanced fuels: call for evidence

Executive summary

It seems clear that the future of low-carbon fuel lies with advanced fuels.

Advanced fuels could offer greater carbon savings without the same concerns around food security and land use change. While the potential of these technologies is clear, they have not yet been widely commercialised.

In this call for evidence, we are interested in whether further government support will be necessary to bring advanced fuel technologies to market.

The call for evidence will run from 12 December 2013 to 21 February 2014.

Fuels

There are a range of low-carbon technologies that could play a large role in decarbonising transport. In this document, we identify four key technologies:

Advanced biofuels

Hydrogen

Synthetic fuels and fuels from fossil waste

Biomethane

We are interested in the views of stakeholders on the technical potential of each of these fuels, and on what timescales their commercialisation and deployment can reasonably be expected.

Aims of this call for evidence

Through this document we are looking to understand more about the role that advanced fuels can play in decarbonising transport and how best we can move towards this goal.

As well as the use of advanced fuels in transport, we must also consider the role that these fuels could play in other energy sectors (such as heat or energy storage).

We are therefore interested in views on the potential interaction of these other sectors with transport as the UK becomes increasingly decarbonised

Synthetic fuels

Renewable electricity can also be used to generate fuels which are compatible with current vehicles and refuelling infrastructure.

These 'synthetic fuels' use electricity as an energy source, and water and carbon dioxide as feedstocks.

Using this process, a range of hydrocarbon fuels can be generated, including petrol and diesel substitutes

Some of these fuels are close to being commercialised and represent an exciting opportunity for transport decarbonisation. However, it is not straightforward to consider how such fuels would be included in renewable energy obligations such as the RTFO.

Summary of call for evidence questions

1. Should the government focus support for advanced fuels in certain transport sectors? If so, why?

1a.

What are your views on the government's analysis of the use of advanced biofuels in different transport sectors, as set out in the UK Bioenergy Strategy?

Are you aware of alternative estimates of the future uptake of advanced fuels in each transport sector?

1b.

What physical and policy barriers are there to the uptake of advanced fuels in each transport sector?

2.

Is UK government support necessary to commercialise advanced fuel technologies? If so, why?

2a. What should 'advanced' mean? What role should process, feedstock and sustainability have in this definition?

2b. What economic opportunities are there for the UK in developing this industry?

(Potential to develop high-tech UK industry)

5. What could synthetic fuels and fuels from fossil waste deliver, and by when?

5a. How do we determine the extent to which synthetic fuels from electricity are renewable?

8. What support mechanisms could effectively support the deployment of advanced fuels?

8a. If government intervention is necessary, should the focus be on 'market pull' or 'technology push'?

8b. Which of the listed mechanisms would be most effective? What alternatives have we missed?

8c. What factors would be key in your decision to invest in a UK advanced fuel production capacity? How would the listed mechanisms affect them?

8d. Are you aware of any risks, problems or unintended consequences which could arise from introducing these market mechanisms?

8e. How might each of these mechanisms interact with the current support offered for biofuels under the RTFO? What would be the likely consequences of this interaction? Would it be advantageous to offer both forms of support to advanced fuels, with a new support mechanism acting in addition to the RTFO?

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reply to the above questions (not 8c and 8d)

with introduction covering –

UK Power and Transport Sectoral Interaction

Synthetic fuels made from Carbon Dioxide and water

The Automotive Engineering Challenge

Analysis of large scale fuel costs in 2030 (appendix)

Need for a techno-economic study for the UK economy

Key Finding -

Q5 What could synthetic fuels deliver and by when?

With appropriate support and regulation, the policy objective in the EU Transport White Paper (2011) of halving the use of conventionally fuelled cars in urban transport by 2030 is a practical possibility for the UK without the widespread use of EVs.

COORDINATING LOW CARBON TECHNOLOGY INNOVATION SUPPORT

Strategic Framework Briefing and Networking Event

On the 24th March 2014, the LCICG will be hosting a Briefing and Networking Event to share and discuss the new Strategic Framework with key players in the UK low carbon technology innovation sector.

To be held between 14:00 and 16:45 at the [Royal Society of Arts, London](#), the event will be opened by

Rt Hon Greg Barker MP, Minister of State for DECC and will feature presentations from:

Sir Mark Walport, Government Chief Scientific Advisor.

Dr Keith MacLean, Director of Policy and Research at SSE and Industry Co-Chair of the Energy Research Partnership.

Rob Saunders, Head of Energy Generation and Supply at the Technology Strategy Board, speaking on behalf of the LCICG Steering Committee.

Delegates will hear how the major UK public-backed organisations supporting low carbon innovation plan to coordinate future support. The event will close with a networking session.

www.lowcarboninnovation.co.uk