BWG-P-11-04

Certification of Low Carbon Emission Buses

This paper sets out revisions to the certification of procedures for low carbon emission buses and is provided for information. In addition there is a supplementary point raised regarding eligibility on which the views' of the BWG members is sought.

1. Introduction

The procedures for the testing of low carbon emission buses has been revised and will be published on the LowCVP website immediately. This is as a result of discussions in which the BWG and DfT has been engaged over the last year and for which agreement has been reached. The revisions to the test procedures are as a result of the following issues:

- Revision of the target threshold of a low carbon emission bus.
- The treatment of biodiesel in the test procedure.

2. Revision of the LCEB target

At the meeting of the BWG on 19 May 2010a revision to the LCEB target line was agreed (paper BWG-P-10-16). The LCEB target line was revised to bring it up to date with the current Concawe estimates of the embedded well-to-tank CO2 emissions. The result being the LCEB target line became:

LCEB Target GHG(g/km) = 502 + 6.28 * Max Total Passengers

This was adopted by DfT and incorporated into the DfT guidance to bus operators and consequently the documentation held on the LowCVP website including the test procedures published on the LowCVP website. These were previously published for;

- Vehicle Accreditation Requirements
- Annex A2 - Test Procedure for Charge Sustaining Hybrid Powertrains
- Annex A3 - Test Procedure for Charge Depleting Hybrid Powertrains
- Annex A4 - Test Procedure for Pure Electric Drivelines

However the Annex A1, relating to the test procedure for Conventional Powertrains has not previously been published due to discussions regarding the treatment of biodiesel which has now been resolved.

3. Treatment of biodiesel

The proposed definition of a LCEB put forward by the LowCVP was designed to be technology neutral based on a Well-To-Wheel measure of greenhouse gases. DfT were not comfortable with this definition being used as the basis for eligibility for the Green Bus Fund or the LCEB BSOG Supplement because it would provide an incentive for conventional buses running on high blend biodiesel. This may have over incentivised high blend biodiesel and

Government policy is that the policy instrument they wished to use to primarily control biofuels is the Renewable Transport Fuels Obligation.

This has now been resolved and the agreed approach is that:

- Conventionally powered buses fuelled solely by biodiesel cannot take account of the Well-To-Tank(WWT) biodiesel emissions and must use the WTT emissions of diesel in calculating the GHG emissions to compare to the LCEB target.

- Conventionally powered buses using another liquid or gaseous fuel can take account of the Well-To-Tank emissions of the biofuel for comparison to the LCEB target.

As a result the Annex A1, relating to the test procedure for Conventional Powertrains has now been completed and is ready to be published.

4. Guidance Sought

Based upon the agreed treatment of conventional powered buses the DfT has produced the following summary of which technologies require to be tested and which require to submit evidence of fuel used in operation as part of a BSOG claim.

Bus Type	Need for LCEB test	Evidence needed to claim 6p BSOG incentive
Electric	automatically qualifies	Not eligible (electric buses do not receive BSOG)
Biomethane	automatically qualifies	operators need to show how much biomethane used
Natural Gas (methane from fossil fuel)	needs to take the test	operators need to show how much methane used
Bioethanol	needs to take the test	operators need to show how much bioethanol used
Biodiesel	needs to take the test (based on tailpipe emissions only).	As bus would pass test using ordinary diesel, no need to provide evidence of what diesel is actually used

Dual Fuel Vehicles

The treatment of dual fuelled vehicles is not clear from this summary. Dual fuelled vehicles typically running on methane and diesel, but the same strategy could be used for running a vehicle on a spark ignited fuel in a compression engine where the diesel is used to ignite the other fuel.

It is proposed that:

- Dual fuelled vehicles should be tested against the WTW LCEB target and should be required to provide evidence of the continued use of the fuel the LCEB certification was provided for eg. If the test was run on biomethane then the BSOG return should provide evidence that the vehicle continues to run on that fuel.

Members of the BWG are invited to comment on this proposal.