

Brussels, 14 February 2014
ENTR.B.4./KS**Definition of Hybrid Electric Vehicles (HEV) in the WLTP GTR****Problem definition**

It is the clear intention of the European regulator that all vehicles, having an electric propulsion system and a combustion engine on board, regardless of their specific design, are covered by the HEV definition in the WLTP-GTR, in particular serial electric hybrids and range extenders (where the ICE cannot directly propel the vehicle but contributes to vehicle propulsion indirectly).

The WLTP GTR currently defines "*Hybrid electric vehicle (HEV)*" as a "*vehicle using at least one fuel consuming machine and one electric machine for the purpose of vehicle propulsion*".

This definition is very close to the HEV definition of UNECE R 83.06¹. While the Commission services believe that the existing regulatory wording in UNECE R 83.06 is consistent with the regulatory intention described above, there seems to be an occasional misunderstanding by type approval authorities and some manufacturers, who believe that "extreme range extenders" (e.g. serial hybrid + small gasoline tank volume + range extender only used after battery is exhausted, + ...) could be type approved as pure electric vehicles. It should be noted that such misguided approval would give a significant, but unjustified, advantage for the CO₂ emission monitoring Regulation, also considering the "super-credit" effect (i.e. HEVs will be counted up to 2x for the calculation of the fleet average CO₂ emission). As a consequence it is of utmost importance to define a clear legal situation and create the same level playing field for all vehicle manufacturers.

Suggested solution

The HEV definition in the WLTP-GTR should be unambiguous for all parties, regardless of their vested commercial interests, such that the legal intention is fulfilled. Two concrete options have been suggested so far:

- (1) Revision of the HEV on the basis of the HV definition in the WLTP-GTR 1a:

'Hybrid electric vehicle' (HEV) means a vehicle with a powertrain containing at least one fuel consuming and one electric energy converter as well as fuel and electric energy storage systems.

¹ It should be noted that this definition of UNECE R 83.06, which had been taken over into Euro 5/6 Regulation (EC) 692/2008 has been changed for European type approval legislation by 630/2012 just "to address the issues described in this document.

- (2) Revision of the HEV on the basis of the HEV definition currently used in European legislation (Regulation (EC) 692/2008 as amended by 630/2012):

'Hybrid electric vehicle' (HEV) means a vehicle that, for the purpose of mechanical propulsion, can draw energy from both of the following on-vehicle sources of stored energy/ power:

(a) a consumable fuel;

(b) a battery, capacitor, flywheel/generator or other electrical energy/power storage device;

This definition includes vehicles, which can draw energy from a consumable fuel only for the production of electric energy for the purpose of vehicle propulsion.

Details and alternative definitions solving the problem described above can be discussed by the WLTP informal working group.