Explanation for generic RCB Correction

The generic approach is already in place for ICEs. NOVC-HEVs gain all energy for propulsion also from ICE. These vehicles are very close together in terms of how they are operated. For the RCB correction there are two main influencing parameters:

- Willans factor
- Generator efficiency

<u>Willans factor</u>

- It´s an average value for all kind of engines (different cylinders, Layouts, power, …)
- Depending on the engine characteristics the Willans factor differs in both the power related portion and the zero load portion. The current Willans factors for each fuel concept in legislation are a very good average over all kind of engines.
- Compared to that the influence of slightly different operating points in case of an NOVC-HEV compared to the variation of ICE engines, the slightly less energy consumption due to recuperation is minor.

➔ Therefore the existing Willans factor represents also NOVC-HEV's well

<u>Generator Efficiency</u>

- A generator efficiency of 1 in case of charging means that 100% of the mechanical energy can be converted in electrical energy
- As this is physically not possible the generator efficiency of one represents a worst case approach regarding the calculation of an CO_2 correction factor for charging
- A generator efficiency of 0,67 in case of discharging means that only 67% of the used electrical energy is used for mechanical propulsion. It is scientifically recognized that efficiency of electric drive trains are much higher therefore this approach represents also a worst case

➔ Therefore the proposed generator efficiencies for charging and discharging represent a worst case for NOVC-HEV's

Comment: NOVC-HEV´s (as per definition of this GTR) certified in China use this approach even nowadays in homologation