



UNITED NATIONS

Economic and Social Council

ECONOMIC COMMISSION FOR EUROPE

Working Party on Pollution and Energy

Informal meeting of the GRPE working group on Hydrogen and Fuel Cell Vehicles – Sub Group Environment (HFCEV-SGE)

8 June 2009, (10.00 a.m. - 12.30 p.m.)

Room V

Palais des Nations (Geneva/Switzerland)

Agenda

- **Status of the work**
- **Document review/Comments**
- **The way forwards**

Status of the work

5 documents have been prepared and issued for comments:

1. Note addressing aspects considered by the Subgroup Environment and give the structure of the technical reports in support of the harmonisation process (H2SGE-04-IP-01).
2. Energy and Operation Performance of Hydrogen (H₂) fuelled Vehicles. Rev. of the draft report: Fuel consumption, External Electrical Consumption and Maximum speed measurement (H2SGE-04-IP-02.2).
3. H₂ Reference Fuel and Reference Gases (H2SGE-04-IP-03).
4. Draft Technical Report -Pollutant Emissions of Hydrogen (H₂) Fuelled Vehicles (09-04-06-HFCV-SGE-TR-pollutantemissions → H2SGE-04-IP-04)
5. Draft Technical Report -Carbon dioxide (CO₂) Emissions of Hydrogen (H₂) Fuelled Vehicles (09-04-06-HFCV-SGE-TR-carbondioxideemissions → H2SGE-04-IP-05)

Documents review (I)

Comments received:

1. U. Klein (Ford – Europe):

- a. H₂ & H₂O should not become regulated emissions
- b. Neither the fuel quality
- c. Where ever possible we should try to adopt standards as we do today in some ECE Regulations/EC Directives.
- d. For top speed measurement we might have to update the ECE R68,
(however this regulations to my knowledge is not mandatory in Europe for homologation purposes).

Documents review (II)

Japanese delegation:

- a. H2SGE-IP-01: Table 1 includes “H2 & H2O emissions” as an area that GTR should address for different vehicles. We would like to know the reason(s) for measuring H2 and H2O emissions from FCV. Also, it is desirable that such reason(s) be contained in the TR (report).
- b. H2SGE-IP-02:
 - i. For fuel consumption, SAE J2572 standard exists: Recommended practice for measuring the fuel consumption and range of fuel cell powered electric and hybrid electric vehicles using compressed gaseous hydrogen (Revised October 2008).
 - ii. For hydrogen fuel quality, SAE J2719 standard exists: Information Report on the Development of a Hydrogen Quality Guideline for Fuel Cell Vehicles.
 - iii. The second correction was made to ISO14687 in March 2008 (ISO 14687 Cor.2:2008).
 - iv. ISO/TS 14687-2 is currently being reviewed for international standardization in 2011.
 - v. Table 1 contains ISO WD23274-2. However, FCHEV is not included in the scope of this standard.

• Japanese delegation:

• H2SGE-IP-03:

- Once the technology to produce and assure the quality of hydrogen fuel containing the minute amount of impurities as specified in the fuel standards is established and such reference fuel is made available, it will be possible to evaluate the effect of impurities on individual vehicles and thus be helpful in the development of FCV.
- Regarding the FCV fuel consumption measurement, the Weight Method, Pressure Method, and Flow Method, as specified in ISO and SAE standards, are currently considered practical. The reliability of the accuracy of these fuel consumption measurement methods was verified by JARI at the time of developing ISO23828.
- While the Hydrogen Balance Method and Oxygen Balance Method will be useful once they are put into practice, there are technical issues to be addressed. The Hydrogen Balance Method needs to take into account water inside the equipment of fuel cell system, and an issue with the water balance measurement accuracy is

Situation at present

	FC	Hybrid		ICE
	H ₂	FC	ICE-H ₂	Mono fuel (H ₂) Bi-fuel Blends Dual fuel
	Environmental & Energetic aspects			
Fuel Consumption	x	x	x	x
CO ₂ emission				Bi-fuel, blends & dual fuel
External Electrical consumption		x	x	
Pollutant emissions			x (NO _x)	x
H ₂ & H ₂ O emissions	x	x	x	x
Engine Power (measurement Procedures)	x	x	x	x
Maximum speed (measurement Procedures)	x	x	x	x
Fuel quality (reference)	x	x	x	x
Recycling	x	x	x	x
Disposal (hazardous mat.)	x	x	x	x
Noise	x	x	x	x

The way forward

- Finalise the technical reports – volunteers for the areas not addressed yet? (target date: mid-Sept'09)
- Restricted editing group to bring the work to a conclusion (~ 4) (target date: mid-Oct'09)
- Meeting in of the group to discuss and agreed in the *explanatory/summary/recommendation paper* (target date end-Oct'09)