Response of IFP Energies nouvelles to ongoing public consultation prepared by the European Commission services on accounting methods and conditions for the 10% renewable energy in transport target – and on the need for additional types of biofuels being listed in Annex III of the Renewable Energy Directive

Common answers to sections A, B and C respectively entitled "Electricity from renewable sources in transport", "Hydrogen from renewable sources in transport" and "Biomethane via the natural gas grid in transport"

As a first input, assuming that the whole amount of electricity or methane used in vehicles is produced from renewable sources as it is suggested in this public consultation is hardly justifiable and could lead to misunderstanding or contest. Moreover, it is not advisable because it would lead to advantage these energy pathways since it would ease in meeting the 10% renewable energy target (because of corresponding specific rules[1] [2] mentioned in articles 3 and 21 of the RED and applying when calculating this renewable energy incorporation rate). Therefore it could dissuade to invest in other alternative energy chains that can be relevant options for Europe in the mid-long term. This proposal (count the whole amount of electricity/methane as renewable) can thus unfairly promote the use of electricity and methane in the transportation sector, which does not comply in our mind with a widely admitted principle and according to which transport policies should be performance driven (in terms of GHG emission reduction for example) and technology neutral.

Incentive measures could be taken in order to support the more promising options but these specific measures should be defined in relation with corresponding expected performances, in line with policy goal. Such specific measures are already defined in Articles 3 [1] and 21 [2] of the RED to calculate the renewable energy incorporation respectively for renewable electricity and biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. We believe that defining such coefficients is a relevant manner to promote the more promising pathways. However, in order to define a fully coherent policy we believe that this system should be broadened to all renewable energy pathways that can be used in the transport sector. This will imply to explicitly define new coefficients for all renewable alternatives - including notably all types of biofuels – corresponding to the factor that shall be applied for the calculation of the contribution made by a given alternative to the 10% target (even if corresponding value is set at 1). We think that that the values of these coefficients should be defined in accordance with the two typical characteristics that define the WTW GHG emission performances of each energy pathway, that is to say :

- the primary renewable energy source (solar, wind, waste, agricultural residue, other residue, detailed list of agricultural and forest biomass resource etc.);
- the technology used to valorise the primary energy source into energy used in vehicles.

[1] Article 3 of the RED "For the calculation of the electricity from renewable energy sources consumed by electric road vehicles, that consumption shall be considered to be 2.5 times the energy content of the input of electricity from renewable energy sources."

[2] Article 21 of the RED "For the purpose of demonstrating compliance with national renewable energy obligations placed on operators and the target for the use of energy from renewable sources in all forms of transport referred in Article 3(4), the contribution made by biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material shall be considered to be twice that made by other biofuels."

This implies to list and describe more in details in the Directive the alternative renewable energy options for the transportation sector, including notably :

- the different biomethane pathways,
- the different hydrogen production pathways,
- coprocessing of renewable and non renewable resources that can be developed to produce partly renewable fuels, synthetic natural gas or hydrogen (several European working groups – such as CEN TC383 or the European Expert Group on Future Transport Fuels - have identified that these coprocessing systems are not sufficiently described in the RED),
- alternative fuel chains for air transport (see answer to section D below).

We think that the value of each coefficient should be justified both qualitatively (high WTW GHG emission reduction performance ? incentive measure to favour investments which are needed to develop a given technology ? ...) and quantitatively (for example : why this coefficient amounts to 2.5 for renewable electricity and to 2 for biofuels produced from waste?).

Section B: Hydrogen from renewable sources in transport. Answer to question B.1 "Which are in your view the most likely ways to produce hydrogen from renewable sources (partly or fully) by 2020 ? (this question being related to transport)

Two technologies might be considered to produce hydrogen from (at least partly) renewable sources under nearly acceptable economic conditions:

- World scale steam reforming (20 000 to 1000000 Nm^3/h capacity) of a mixture of biomethane with much larger volumes of natural gas given biomethane availability,
- Electrolysis from wind mill electricity with back up from the grid for constant production level.

But the deployment of hydrogen (renewable or not) in transports is facing three issues:

- Crude oil (+ biofuels as already specified) will satisfy the demand until 2020+ at a more competitive price,
- The deployment kinetic of a full hydrogen pathway will take a huge time even after fuel cell cars reach a competitiveness which is not guaranteed.
- And the competition/consistency with EV development in terms of efficiency for objective of the directive has to be clarified.

In some research consortium we were involved in, such as the HyFrance-3 project (financed by Ademe), a consensus was reached that any deployment of the hydrogen pathway would not occur before 2025-2030 at best, this even assuming a strong political push that does not exist yet.
For all these reasons, the probability to get by 2020 any significant development of the hydrogen pathway for transports is almost nil.

Section D: Energy content of biofuels

Question 1: Do you think additional types of biofuels need to be listed in Annex III of the Directive? If yes, which ones and could you provide values?

The existing Annex III of the RED should be updated to include Fatty Acid Ethyl Esters (FAEE) and alternative fuels for air transport. Finalized or ongoing research programs lead us to consider the following fuels as potential options for the air transport in 2020:

- Fisher-Tropsch Jet fuel (Lower Heating Values: 44 MJ/kg or 33MJ/l, considering an average density of 750 kg/m3 for this product).
- Jet fuel produced from hydrotreatment of vegetable oil (Lower Heating Values: 44 MJ/kg or 33MJ/l, considering an average density of 750 kg/m3 for this FT fuel).
- Jet fuel produced via biomass liquefaction/pyrolysis (Estimated Lower Heating Values: 42 MJ/kg or 34MJ/l. These values widely depend on the composition between napthenic and naptheno-aromatics).
- Jet fuel produced via sugar/cellulose direct conversion (Lower Heating Values: 44 MJ/kg or 33MJ/l).

Moreover, we think these additional types of biofuel pathways need to be listed in a updated version of Annex V of the RED. In the same update of the Annex V, coprocessing pathways should also be mentioned as options to produce partly renewable fuels. This will imply to distinguish the various potential routes (coprocessing to produce biofuel, synthetic natural gas, hydrogen etc.) and the various feedstocks (non renewable and renewable feedstocks). Such as mentioned in a Communication of the Commission (C 160/13) *"Certain fuels consist only partly of renewable material. For some of these, such as ETBE, Annex III to the Directive indicates what percentage of the fuel is renewable for the purpose of target accounting (1). For such fuels not listed in Annex III, including fuels produced in flexible processes that do not always deliver consignments with the same mix of sources, analogy can appropriately be drawn from the rule for electricity generated in multi-fuel plants: 'the contribution of each energy source is to be taken into account on the basis of its energy content' (2). For the purposes of compliance with the sustainability criterion on greenhouse gas savings, the biomass-derived part of fuels referred to in the previous paragraph has to meet the appropriate threshold. For some, such as ETBE, the Directive gives default values.",* when a fuel consists only partly of renewable material, only the biomass-derived part has to meet the WTW GHG emission threshold defined in the RED and this biomass-derived part is equal to the share of biomass in the energy content of the overall feedstock. WTW GHG emission default values for these biofuels should be defined as "Equal to that of the biomass-based production pathway; the share of biofuel being calculated as equal to the share of biomass in the energy content of the overall feedstock".