

November 7, 2016

SET-Plan – Issues Paper

“Strategic Targets for bioenergy and renewable fuels needed for sustainable transport solutions in the context of an Initiative for Global Leadership in Bioenergy”

COMMENTS FROM THE NEW EUROPEAN RESEARCH GROUPING ON HYDROGEN AND FUEL CELLS

N.ERGHY supports in general the EC Strategic Targets for bioenergy and renewable fuels needed for sustainable transport solutions as outlined in the Issue Paper.

Two general comments:

- 1) Hydrogen should be addressed much more significantly throughout the complete document due to its comprehensive advantageous also in concerns of renewable fuels and bioenergy, meaning also in chapters that speak about "why taking action now/barriers to address". This is currently missing
- 2) The inclusion of Bioenergy into this Issue Paper justifies a broader look at H2 than just in the transport sector, given that the political interest in this technology is precisely motivated by the nature of H2 as an energy vector and thus its potentials for cross-sectorial integration.

Therefore mention to hydrogen may be integrated in:

- Introduction
 - The use of renewable hydrogen and other renewable liquid and gaseous fuels derived thereof is *in this context important as it could play an important role not only in decarbonizing transport, but also in enabling the cross-sectorial integration of low value, surplus renewable electricity and realizing a fully renewable energy supply for linking the electricity, heating, transport and industrial sectors.*
- Why taking action now?
 - Technologies using renewable hydrogen can also play an important role in the integration of intermittent renewables, besides decarbonisation of various end-use applications. They are particularly beneficial if low-carbon energy needs to be stored, either in large quantities or over very long-time.
 - Hydrogen has the potential to interconnect various energy sectors and energy transmission and distribution networks, and thus increase the operational flexibility of future low-carbon energy systems. Synergies between hydrogen end-use demand and VRE integration can unlock the carbon emission mitigation potential of otherwise-curtailed low-carbon electricity.
 - Hydrogen can also be used to valorise stored or emitted CO2 by producing synthetic methane or chemical products (e.g. methanol)
 - Hydrogen technologies using renewables can also provide significant benefit for Europe because they enhance energy independency and security, environmental sustainability and industrial competitiveness simultaneously. Indeed it will lead to build

- a new competitive European industry in strategic sectors, such as renewable energy storage, power generation and transportation.
- It could also substitute hydrogen derived from fossil fuels used in refineries in the production process of diesel and gasoline, hence reducing the GHG emissions of transport sector in the short term.
 - Whereas electrification is expected to play a key role in the decarbonisation of transport sector in the longer term, it is not possible or very challenging for some applications. In view of the increasing competition for biomass and limited availability of areas for growing fuel crops, the long-term focus should not be on biofuels alone and power based fuels should be given greater consideration to ensure an effective and comprehensive climate-action strategy in transport. In particular, Power-to-Gas/Power-to-Liquid technologies can serve the needs of aviation, shipping and long-distance freight.
- Barriers to address
 - Although the GHG mitigation potential of hydrogen technologies is promising, important obstacles for widespread deployment need to be overcome. Most hydrogen technologies are still in the early stages of commercialisation and currently struggle to compete with alternative technologies, including other low-carbon options, due to high costs. Additional attention will be required before their potential can be fully realised.
 - The barriers are mainly related to current costs of specific technologies e.g. electrolyzers, the development of a hydrogen comprehensive transport and distribution network, as well as the cost efficient production of low-carbon renewable hydrogen.
 - Another issue that must still be resolved includes the establishment of a full industrial supply chain enabling serial production making the technology mature and cheaper and globally competitive. In order to secure long-term availability of these technologies, pilot plants and demonstration projects operating under various techno-economic conditions should be promoted in all fields of application.
 - Specific, sectorial developments
 - Mention to renewable hydrogen as only a renewable fuel for transport appears too restrictive. As an energy vector, renewable hydrogen will also contribute to power generation, to heating and cooling and to easily interconnect all these different sectors.
 - Targets
 - Targets on hydrogen for the different sectors have been addressed by the Fuel Cell and Hydrogen 2 Joint Undertaking (FCH 2 JU) at the European level as part of Horizon2020 and N.ERGHY agrees with it.

Best regards,

On behalf of THE NEW EUROPEAN RESEARCH GROUPING ON HYDROGEN AND FUEL CELLS
(N.ERGHY)