

CertifHy: Developing a European Framework for the Generation of Guarantees of Origin for Green Hydrogen

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Abstract : Hydrogen is expected to play a key role in the transition towards a low-carbon economy, especially within the transport sector, the energy sector and the (petro)chemical industry sector. However, the production and use of hydrogen only make sense if the production and transportation are carried out with minimal impact on natural resources, and if greenhouse gas emissions are reduced in comparison to conventional hydrogen or conventional fuels. The CertifHy project, supported by a wide range of key European industry leaders (gas companies, chemical industry, energy utilities, green hydrogen technology developers and automobile manufacturers, as well as other leading industrial players) therefore aims to: 1. Define a widely acceptable definition of green hydrogen. 2. Determine how a robust Guarantee of Origin (GoO) scheme for green hydrogen should be designed and implemented throughout the EU. It is divided into the following work packages (WPs). 1. Generic market outlook for green hydrogen: Evidence of existing industrial markets and the potential development of new energy related markets for green hydrogen in the EU, overview of the segments and their future trends, drivers and market outlook (WP1). 2. Definition of "green" hydrogen: step-by-step consultation approach leading to a consensus on the definition of green hydrogen within the EU (WP2). 3. Review of existing platforms and interactions between existing GoO and green hydrogen: Lessons learnt and mapping of interactions (WP3). 4. Definition of a framework of guarantees of origin for "green" hydrogen: Technical specifications, rules and obligations for the GoO, impact analysis (WP4). 5. Roadmap for the implementation of an EU-wide GoO scheme for green hydrogen: the project implementation plan will be presented to the FCH JU and the European Commission as the key outcome of the project and shared with stakeholders before finalisation (WP5 and 6). Definition of Green Hydrogen: CertifHy Green hydrogen is hydrogen from renewable sources that is also CertifHy Low-GHG-emissions hydrogen. Hydrogen from renewable sources is hydrogen belonging to the share of production equal to the share of renewable energy sources (as defined in the EU RES directive) in energy consumption for hydrogen production, excluding ancillary functions. CertifHy Low-GHG hydrogen is hydrogen with emissions lower than the defined CertifHy Low-GHG-emissions threshold, i.e. 36.4 gCO₂eq/MJ, produced in a plant where the average emissions intensity of the non-CertifHy Low-GHG hydrogen production (based on an LCA approach), since sign-up or in the past 12 months, does not exceed the emissions intensity of the benchmark process (SMR of natural gas), i.e. 91.0 gCO₂eq/MJ.

Keywords : green hydrogen, cross-cutting, guarantee of origin, certificate, DG energy, bankability

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