THE POTENTIAL FOR THE DEVELOPMENT OF THE HYDROGEN ECONOMY IN UKRAINE UNTIL 2030

Svitlana A. Fedulova. Alfred Nobel University, Dnipro (Ukraine).
E-mail: sveta_fedulova@ukr.net

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The proposed study is devoted to defining a set of means, methods and conditions that enable the creation of a sustainable and efficient hydrogen economy in Ukraine for the period up to 2030. The study itself is aimed at studying the features of the operation of the hydrogen square concept, which illustrates the various stages of the hydrogen value chain from production to final use, and the potential opportunities for the development of the hydrogen economy in Ukraine until 2030. Using the hydrogen square, safeguards across the entire hydrogen value chain – production, storage, transport and use – are discussed, highlighting the need for a balanced approach to ensure a sustainable and efficient hydrogen economy. It has been determined that the greatest potential opportunities for the development of the hydrogen economy in Ukraine for the period up to 2030 are the transportation of a mixture of hydrogen with natural gas (gitan) through the Ukrainian GTS and the production of methane from green hydrogen (synthetic methane) through the implementation of Power-to-Gas technology. It has been found that the readiness of gas transport networks to transport a mixture of hydrogen with natural gas (gitan) differs greatly in different EU countries, and the industry itself is currently at a very early stage of development. Blending is likely to be a temporary or transitional solution, given the existence of a technical and economic limit to the volume of hydrogen concentration that traditional gas infrastructure can handle. The possibility of using Power-to-Gas technology in Ukraine, in the city of Dnipro, is described. The production of synthetic methane through the implementation of the Power-to-Gas technology will provide an opportunity to obtain the gitan mixture without the use of fossil fuels in the future, which will enable the hydrogen economy to function completely without fossil fuels.

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