OPTIONS OF EXPORTING HYDROGEN FROM UKRAINE TO THE EU

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ABSTRACT

In light of the pressing need to achieve climate neutrality in the energy sector, the European Union seeks to identify strategies that will enhance and diversify its green energy supplies. As a renewable energy source, green hydrogen promises to offer a viable alternative to fossil fuels where green electricity may be insufficient or inaccessible. This is why the production and supply of this innovative energy carrier is becoming a significant focus in EU politics and research. This article examines and compares promising opportunities for supplying green hydrogen to the EU, particularly to countries such as Germany and Austria, which may face energy shortages in the absence of green hydrogen imports in the future. A comparative analysis was conducted to evaluate the production and supply costs of green hydrogen in various potential partner countries.

It can be assumed that the cost of renewable electricity production in Ukraine may prove to be lower than in the other countries under consideration. Consequently, the competitiveness of green hydrogen supply could be mainly determined by technology and transportation distance.

The results of the comparative analysis indicate that, given its geographical proximity and existing, well-developed network of gas pipelines, in addition to favorable natural conditions for the production of green electricity, Ukraine could offer considerable economic advantages for the supply of Germany and Austria, as well as for the EU as a whole. A series of potential scenarios for utilizing Ukraine's transport infrastructure to facilitate the supply of green hydrogen to the EU were subjected to analysis for this purpose. A fundamental condition precedent to this end is that the energy sector in Ukraine must achieve stability and recover from the consequences of war.

Keywords: hydrogen export, hydrogen supply, renewable energy sources, pipelines, diversification of energy sources.

INTRODUCTION

In view of the current energy crisis, the import of renewably produced hydrogen has gained importance in the EU, in addition to renewable electricity supplies from abroad. Hydrogen is a stable energy source that could balance electricity consumption with fluctuating electricity generation from other renewable energy sources.

It seems highly unlikely that the EU will be able to produce sufficient quantities of hydrogen internally, given the current lack of green electricity generation. It thus follows that the EU will be required to import a significant quantity of hydrogen produced in an environmentally friendly manner. The share of hydrogen in the EU energy mix is estimated to increase from less than 2% currently to 13-14% in 2050 [1].

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