



# UKRAINE'S GREEN HYDROGEN POTENTIAL

NEW CHALLENGES AND OPPORTUNITIES

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# UKRAINE'S GREEN HYDROGEN POTENTIAL



The production of hydrogen in Ukraine can become a key tool for the independence of Ukraine and Europe from the energy resources of the aggressor and the rapid transition to the use of green energy.

For Ukraine, this is also a chance to become the main energy supplier of the "fuel of the future" for Europe.

According to pre-war estimates of the International Renewable Energy Agency, Ukraine has the capacity to install **more than 320 GW of wind and 70 GW of solar energy**. This does not include an assessment of the potential for installing wind and floating farms in Crimean waters, which the World Bank estimates could add more than 250 GW. Thus, the total capacity of renewable sources can reach **415 GW of installed capacity within 10 years, and with the Crimean capacity more than 700 GW**.

# THE POTENTIAL OF GREEN HYDROGEN IN UKRAINE



Ukraine has significant potential of solar energy, whereas Odessa, Kherson, Mykolaiv and Zaporizhzhia regions in terms of the presence and intensity of the sun can be compared with the central region of Italy.

A capacity-development of wind energy of Ukraine ranks second place after the United Kingdom throughout the whole of Europe.



# HYDROGEN TRANSPORTATION POTENTIAL



Developed gas transmission system

Potential of the Danube River (hydrogen transportation to at least 5 countries)

Developed gas transmission system

At least 20 road connections



In this regard, there is active communication on hydrogen transportation with some EU countries and countries of the Danube region.





## HYDROGEN VALLEY

Hydrogen produced in the south-western part of **Ukraine around Odesa**, where wind and solar conditions are favorable for large-scale production, could be liquefied or converted to LOHCs and shipped.

There are currently several pilot hydrogens projects in Ukraine for the production, use, and transportation of hydrogen. **One of them is a project to create an energy cluster in Southern Bessarabia (Odessa region)** focused on the production of electricity from renewable energy sources, the production of green hydrogen, and its export to the European Union. The plans are to implement the construction of **an electrolytic power plant with a capacity of 3,000 MW and a solar power plant with a capacity of 5,000 MW.**





# NEW CHALLENGES AND OPPORTUNITIES

## REPowerEU

The position of a rapid transition to clean energy was firmly established in the proposal of the European Commission REPowerEU - a plan to gradually end Europe's dependence on fossil fuels from Russia by 2030 and increase the sustainability of the energy system throughout the EU.

Among other measures, REPowerEU proposes an ambitious target of achieving an additional 15 million tonnes (Mt) of renewable hydrogen on top of the 5.6 million tonnes foreseen under Fit for 55, which goes beyond the targets of the EU Hydrogen Strategy.



- H<sub>2</sub> pipelines by conversion of existing natural gas pipelines (repurposed)
- Newly constructed H<sub>2</sub> pipelines
- Export/Import H<sub>2</sub> pipelines (repurposed)
- Subsea H<sub>2</sub> pipelines (repurposed or new)
- Countries within scope of study
- Countries beyond scope of study
- ▲ Potential H<sub>2</sub> storage: Salt cavern
- Potential H<sub>2</sub> storage: Aquifer
- ◆ Potential H<sub>2</sub> storage: Depleted field
- Energy island for offshore H<sub>2</sub> production
- ✦ City, for orientation purposes



## EUROPEAN HYDROGEN BACKBONE

"European Hydrogen Backbone" (EHB) presented an analysis of the future demand, supply and transportation of hydrogen across Europe.

The research complements published EHB maps showing a hydrogen pipeline network of almost 40,000 km by 2040, connecting 19 EU member states, as well as the UK and Switzerland





# PLAN FOR THE RECOVERY OF UKRAINE

## PLAN OF TIMMERMANS

A recovery plan that can create the most modern and sustainable energy system in Europe. 9-10.01.2023

- Renewable energy sources are of strategic importance
- Joining the EU Electrolysis Partnership
- Initiative of the Central European Corridor H2
- Biomethane for direct use or for hydrogen production



9-10.01.2023



## UKRAINE AND THE EU SIGNED A MEMORANDUM ON STRATEGIC PARTNERSHIP IN THE FIELD OF RENEWABLE GAS



According to the European Green Course, during 2025-2030, hydrogen energy should become the main component of the EU's integrated energy system, and the capacity of electrolysis plants will increase.



For European countries, Ukraine is considered as a transit country for green hydrogen in the "Green Hydrogen for the European Green Course 2x40 GW" strategy. By 2030, it is necessary to provide 80 GW of hydrogen production capacity using electrolysis technology, while 10 GW of green hydrogen production capacity should be created in Ukraine.



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**EC President Ursula von der Leyen said - "This will give Ukraine not only ecologically clean energy, but also improve energy security due to the decentralization of the energy system."**





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**THANK YOU FOR  
ATTENTION!**  
THE POWER OF FREEDOM

