Distribution of hydrogen energy solar sites in Kazakhstan

Title: Distribution of hydrogen energy solar sites in Kazakhstan
Generated on: 2026-03-09 15:00:22

What resources are needed for green hydrogen production in Kazakhstan?
We provided the first resource assessment for green hydrogen production in Kazakhstan by focusing on three essential resources: water, renewable electricity, and critical raw materials.

Does Kazakhstan have a green hydrogen infrastructure?
assessment of the geographic distribution of critical minerals and metals in Kazakhstan and estimation of the number of critical minerals and metals for developing green hydrogen infrastructure in Kazakhstan. This is the first study in Central Asia focusing on green hydrogen production at the country scale.

How much energy does Kazakhstan need to produce hydrogen?
In our base scenario, producing 5 Mt hydrogen requires 75 GW of RES capacity, about 3 times higher than Kazakhstan's total electric power capacity of 2022. The cases for 2 Mt and 10 Mt green hydrogen production require 30 GW and 150 GW renewable electricity capacity, respectively.

How much solar power does Kazakhstan need?
Renewable electricity potential in South and West Kazakhstan is sufficient to run electrolyzers up to 5700 and 1600 h/year for wind turbines and solar panels, respectively. In our base case scenario, 5 Mt green hydrogen production would require 50 GW solar and 67 GW wind capacity, considering Kazakhstan's wind and solar capacity factors.

Please cite this publication as follows: Deutsche Energie-Agentur (Publisher) (dena, 2023) "The Role of Water for Sustainable Hydrogen Production in Kazakhstan - Part II: An initial geospatial assessment ...

PDF | On Jun 19, 2024, Serikzhan Opakhai and others published Hydrogen energy in Kazakhstan: prospects for development and potential | Find, read and cite all the research you need on...

Kazakhstan"s early adoption of renewable energy initiatives and its commitment to hydrogen development create a strategic advantage in the global market. However, current green hydrogen ...

We assessed the spatial distribution and availability of critical raw materials for green hydrogen production technology components, i.e., wind turbines, solar PV panels, and electrolyzers ...

Kazakhstan possesses low-cost and potentially high availability of renewable electricity to facilitate green hydrogen production. The renewables sector is experiencing rapid growth, albeit from a low base.

Low carbon hydrogen in refineries or ammonia plants can be produced using CCUS on existing SMR plants or using green hydrogen. In the case of CCUS, the captured CO2 can be stored in geological ...

The same authorities responsible for the Hyrasia One project and the SVEVIND Energy company emphasize that the Middle Corridor is the privileged route for exports of green hydrogen from ...

Abundant renewable energy potential: Kazakhstan"s vast wind and solar resources, combined with its available land, create favourable conditions for large-scale green hydrogen production.

Website: https://www.lesfablesdalexandra.fr