Iceland increased renewable energy penetration

Iceland increased renewable energy penetration

Iceland"s geothermal resources provide around 30 percent of the energy mix it uses to power itself. Energy companies transport geothermal water directly to houses from the source, using boreholes to send the hot water through pipelines. This is relatively easy as many of Iceland"s geothermal resources are located at surface level, rather than deep underground. Iceland has a geothermal power generation capacity of around 755 MW, making it one of the world"s largest geothermal energy generators.

Iceland"s Hellisheidi geothermal power plant is one of the top ten largest geothermal plants in the world. It generates 303 MW of electricity and 400 MW of thermal energy. In 2021, the operators launched a capture and storage (CCS) project at the site, claiming it was the world"s biggest direct air CCS plant at the time. This helped to reduce the already low carbon emissions associated with geothermal energy production.

The Nordic country also produces vast amounts of hydroelectricity, which contributes around 70 percent of the energy mix. Iceland uses the meltwater rivers that flow off massive glaciers to produce its hydroelectric power. The country"s extensive experience in hydropower has led Icelandic experts to develop many other hydro projects around the globe.

Known as the land of ice and fire, Iceland plans to use not only its easy-to-access geothermal resources but to also develop new technology to tap into its extremely hard-to-reach energy potential. Iceland is developing the Krafla Magma Testbed (KMT) Project to try to access energy deep inside its volcanoes. The temperatures inside Krafla, one of the world"s most active volcanoes, reach up to 1,300?C, which, if accessed, could provide a vast amount of clean energy. Experts now plan to bore into a volcano"s magma chamber to access its fumes to produce green energy.

Bj?rn ??r Gu?mundsson, from the KMT project, explained, "Reducing uncertainties about conditions in magma from KMT will decrease start-up costs. KMT aims to revolutionise the geothermal industry by improving geothermal power economics up to an order of magnitude, which was showed to be the difference between a conventional well in Krafla and the IDDP-1 well, which accidentally entered magma. This will be done by designing new innovative production wells that can withstand near-magma conditions."

While we are likely still a long way off from achieving advanced geothermal energy production from magma chambers in volcanoes, the KMT project could provide the information needed to significantly advance the technology required to access this energy source. In addition, Iceland"s long history with geothermal energy production and its abundant natural geothermal resources make it the optimal environment to develop these ambitious volcano projects.

... your login credentials do not authorize you to access this content in the selected format. Access to this

content in this format requires a current subscription or a prior purchase. Please select the WEB or READ option instead (if available). Or consider purchasing the publication.

Oxford University Press is a department of the University of Oxford. It furthers the University"s objective of excellence in research, scholarship, and education by publishing worldwide

Contact us for free full report

Web: https://hollanddutchtours.nl/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346