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Gemserv delivered research and strategic recommendation to Scottish government on hydrogen storage and power generation which informed policy decisions.

THE CHALLENGE

Scotland has an ambitious net zero target of 2045, five years earlier than the rest of the UK. They have enormous potential for renewable energy generation, but network constraints and energy storage challenges are concerns for realising the full potential.

Major forms of renewable energy such as wind and solar generate electricity intermittently.

However, a functional electricity grid needs to balance demand with supply, which creates problems in times of low renewable generation or high electricity demand. Using renewable electricity to produce hydrogen through electrolysis can reduce curtailment and enhance energy security. Hydrogen storage has been an emerging area of interest in Scotland.

With our clients we are developing hydrogen fuel solutions.
Find out more here

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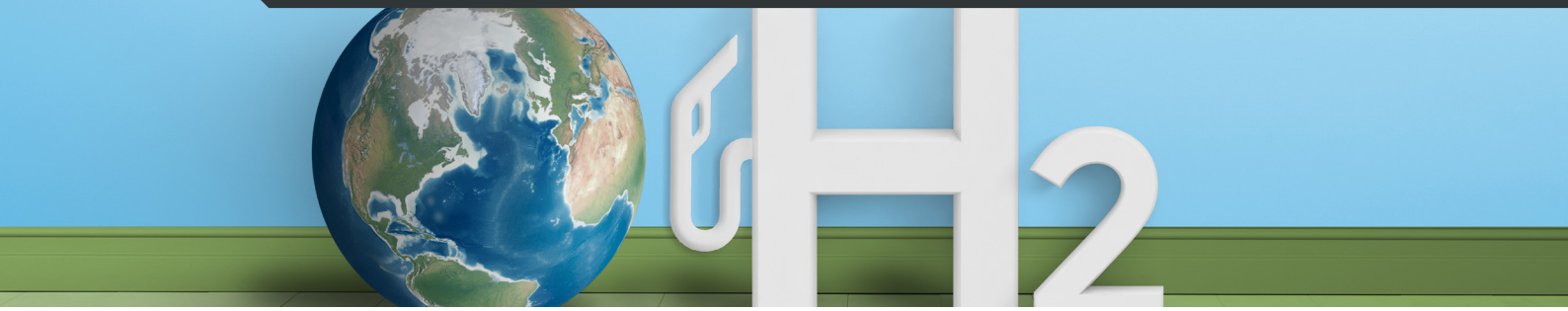

THE SOLUTION

Gemserv was approached to build on previous hydrogen storage projects for Hydrogen UK and the Northwest Hydrogen Alliance. This research used a combination of literature review and stakeholder engagement to gather evidence on different forms of energy storage and hydrogen peaking power. We interviewed several academics, project developers and civil servants to interpret international and UK findings in the Scottish energy and policy context. As this report was aimed at a non-expert audience, our team delivered it considering the Plain English guidelines. Infographics and figures were made accessible for a wide range of audience including people with vision impairment and colour blindness.

To maintain an interdisciplinary approach in our research, we assessed seven conventional forms of hydrogen storage, three hydrogen carriers and four electricity storage technologies using our seven-pillar evaluation framework below.

THE IMPACT

Gemserv formed seven recommendations to the Scottish and UK Government based on the outcome of our evaluation framework. Our report was welcomed by the Scottish Government and Scottish Enterprise, highlighting its interdisciplinary, breadth and accessibility.

The report will inform policy decisions on hydrogen and electricity storage technologies for power generation, industry, heat, transport and export. Our assessment will also serve as a starting point for further research on the volume and technology mix required to meet Scotland's hydrogen export ambitions.

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