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HydroGlen is an exciting new renewable hydrogen powered farming community project at the James Hutton Institute's Glensaugh research farm in north-east Scotland.

Hydrogen is emerging as a key component of Scotland's decarbonization plans and there are significant opportunities for Scotland's farming sector and rural communities to contribute to the energy transition through green hydrogen production and use.

Our HydroGlen technical feasibility study has recently been completed - more information and key findings are available from our website: [glensaugh.hutton.ac.uk/renewable-energy](https://glensaugh.hutton.ac.uk/renewable-energy).



# HydroGlen

Renewable Hydrogen Powered Farm

This project has received support from the Scottish Government's Community and Renewable Energy Scheme (CARES).



# Hydrogen as a community energy source

Energy storage, transport fuel, heating and electricity.

## About HydroGlen

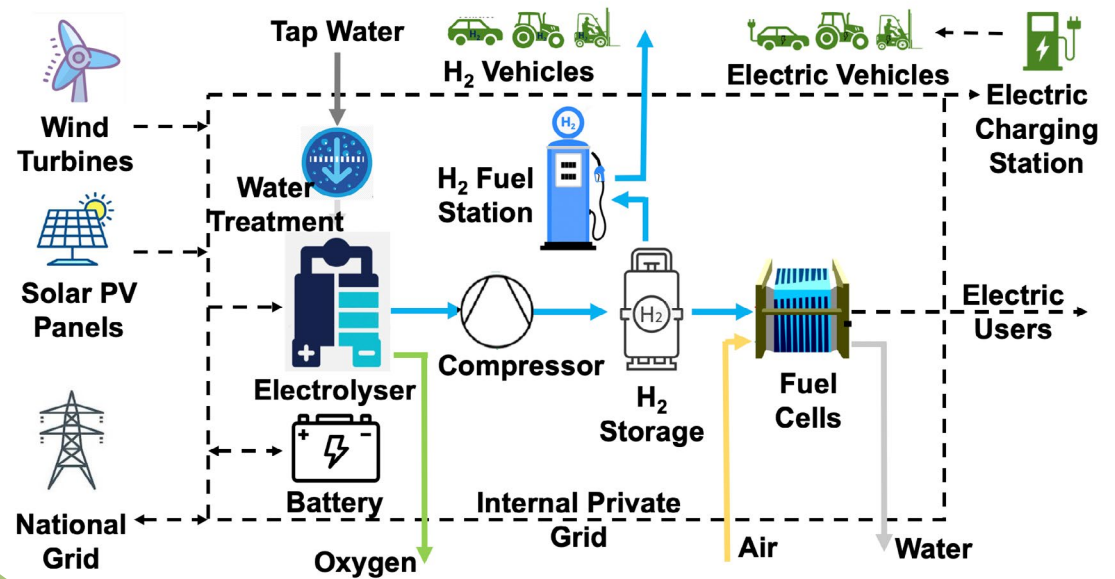
Our HydroGlen feasibility study was commissioned to determine the possibility of retrofitting a rural farm and associated community to become energy-independent, using hydrogen as both an energy storage medium and a source of power. We assessed overall system concept, energy use patterns, safety, environment and planning.

HydroGlen demonstrates the feasibility of farming and other rural communities becoming self-reliant, low-carbon energy producers and exporters, generating 100%+ of their energy requirements (electricity, heating, and transport) through a combination of renewable electricity, on-site green hydrogen production, compression and storage.

Outputs of the study are intended to inform communities in Scotland about technical and economic requirements to become energy-independent and potentially green hydrogen fuel producers themselves, giving an exciting, transformative model for contributing to Scotland's net-zero ambitions.

## Intermittent renewables

The Scottish Government has set clear targets for reduction of emissions to net zero by 2045. Renewable electricity (e.g. wind and solar) will play an important role in achieving these targets; but renewable energy is intermittent (wind does not always blow, sun does not always shine) and needs storage solutions.



HydroGlen key system components

## A hybrid solution

Batteries can be used for short-term energy storage and are a useful part of the HydroGlen system alongside hydrogen, produced in an on-site electrolyser for long-term, flexible storage and transport fuelling solutions. Both electric and hydrogen-fuelled vehicle options are considered in our models.

## An on or off-grid solution

The HydroGlen feasibility report considers both grid-connected and off-grid configurations. A grid connection allows excess generated electricity to be sold to the national grid and simplifies system design.

## Benefits of the HydroGlen system approach

- ✓ Addresses renewable energy intermittency.
- ✓ Supports wider adoption of hydrogen technology.
- ✓ Will contribute significantly to net-zero emissions targets.
- ✓ New source of income for rural communities.
- ✓ Can be scaled to almost any community/farm site.
- ✓ Addresses fuel, electricity and heating requirements.