

'Hydrogen Office' Energy Strategy

client: The Business Environment Partnership (Environmental advisors), Scotland.

client brief: Develop a strategy for the construction of a fossil fuel independent office building using renewable and hydrogen technologies.

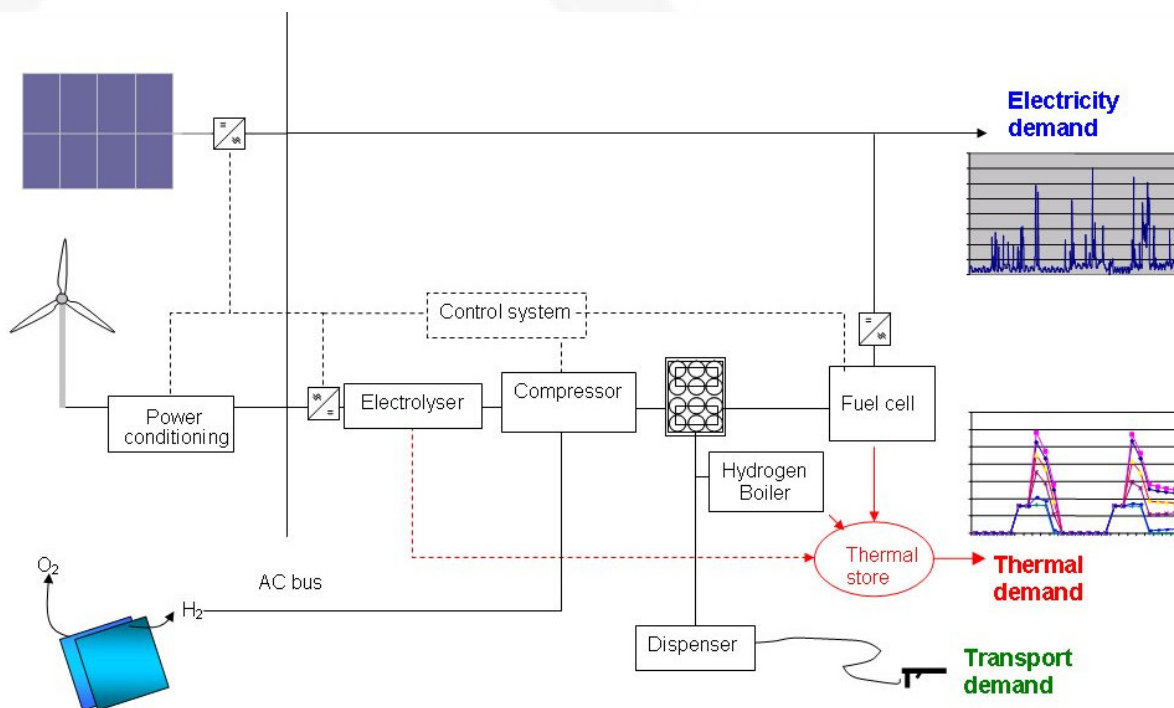
our solution: Techno-economic analysis of hydrogen and fuel cells, CHP, and renewable technologies.

description: The Business Environment Partnership employed Element Energy to assess the viability of developing an office block which can operate independently of fossil fuels, relying on renewable energy for all power and thermal requirements. The building is also to act as a showcase for Scottish and UK hydrogen expertise.

Element Energy completed a detailed assessment of the expected thermal and electrical loads, with a review of all the renewable technologies capable of meeting the demands including photovoltaics, wind, photo-electrochemical hydrogen generation, and biomass. Hydrogen infrastructures were discussed including generation via electrolysis, storage and end-use in fuel cells for CHP operation and transport applications.

A review of potential Scottish partners and companies was made to help maximise the economic benefit of the development to the local region.

This work was completed in partnership with Hydrogen Solar Ltd.



Schematic of a stand-alone hydrogen system, from hydrogen generation, through distribution and storage, to end use in thermal, electrical, and transport applications.