

Impactful careers in the transition to Net Zero

Net Zero Futures 2024

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Senior Project Manager

Arup

Methodology

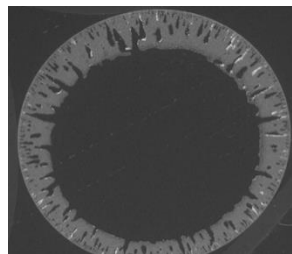
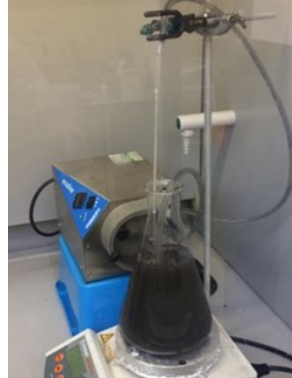
Development of Partial Oxidation Catalysts for the Indirect Internal Reforming (IIR) of Methane in Solid Oxide Fuel Cells (SOFC)



Synthesis of catalysts



Characterisation and activity testing in a fixed bed reactor



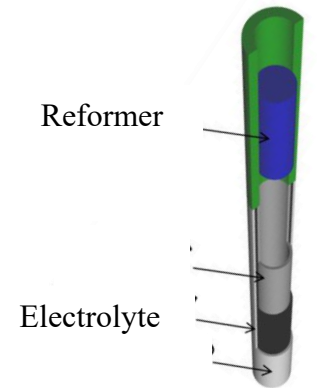
Wash-coating onto Al_2O_3 fibre



Fires bundled and tested ex-situ

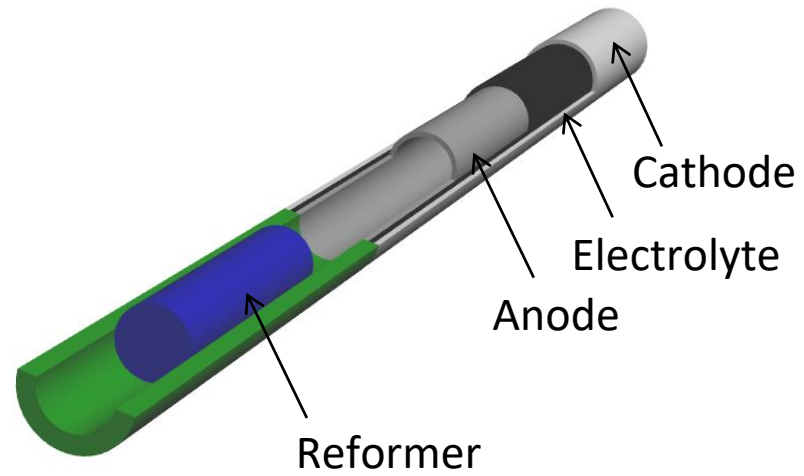
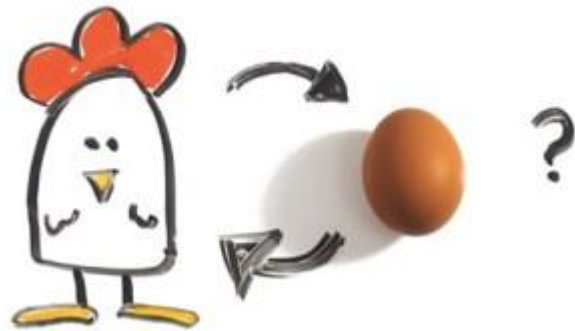


Tested in a section of fuel cell tube



Tested in a fuel cell

Purpose



A brief History of Arup



33
countries

89
offices

17,000
employees

Arup Projects

A small selection of projects you may know



Sydney Opera House
Sydney Australia



Transformational Change at
Dubai Airport, Dubai, UAE



London Infrastructure Plan
2050, London, UK



Bridgewater Hall
Manchester, UK



National Grid Cost Estimating
Hub (ehub), London, UK



Al Bahr Towers,
Abu Dhabi, UAE



Birmingham New Street Station
Birmingham, UK



The Leadenhall Building,
London, UK



High Speed 2, London to West
Midlands, UK



CERN, Future Particle
Accelerator Infrastructure,
Switzerland



Queensferry Crossing,
Edinburgh, UK



Fehmarnbelt Fixed Link
Tunnel, Denmark - Germany

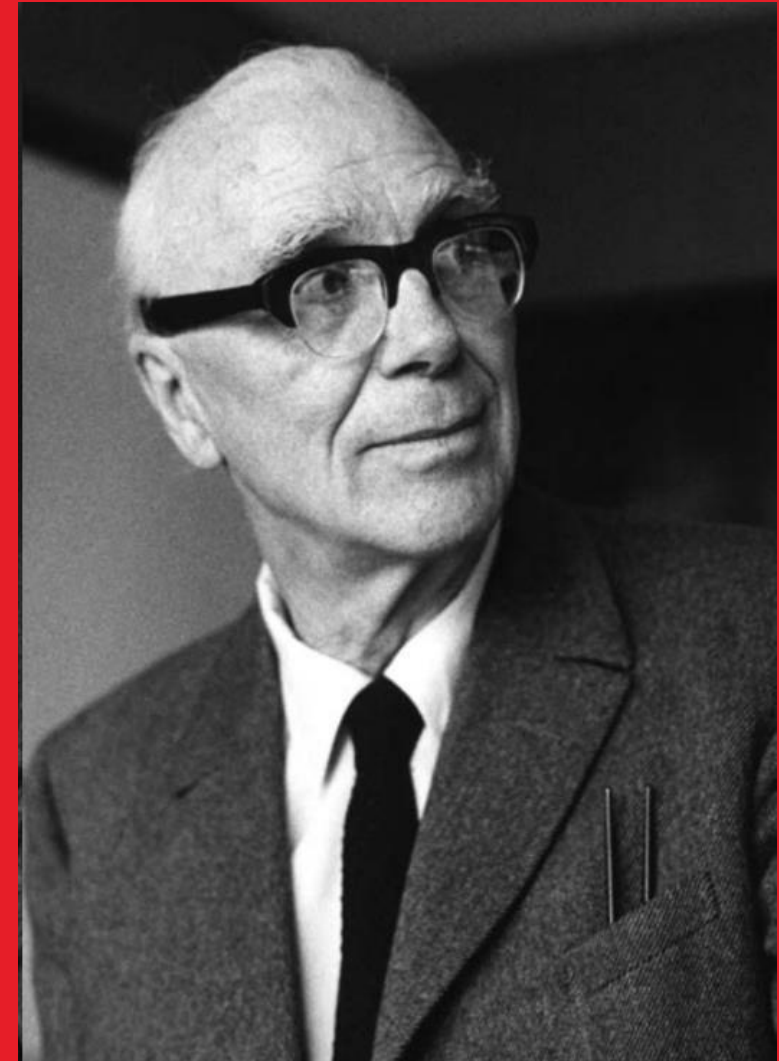
“To do work of quality, we must have people of quality. It is up to us to create an organisation which will allow gifted individuals to unfold...”

- Sir Ove Arup, 1970

The Key Speech

Ove Arup Key Speech - Arup

- Quality of work
- Total architecture
- Humane organisation
- Straight and honourable dealings
- Social usefulness
- Reasonable prosperity of members



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My Current Role

Programme and Project Management



Hydrogen for Heat innovation

Department for Business, Energy and Industrial Strategy, UK

Arup was appointed to lead Hy4Heat, a £25m government innovation programme designed to evaluate, de-risk and demonstrate the use of Hydrogen for heating homes and businesses.

This three-year feasibility study includes: a definition of Hydrogen quality standards, development of domestic appliances for use with Hydrogen gas, safety and risk assessment and preparation for community trials.

“Our mission was to establish if it is technically possible, safe and convenient to replace natural gas (methane) with hydrogen in residential and commercial buildings and gas appliances. This will enable the government to determine whether to proceed to community trial.”



H2NorthEast

Arup conducted a technical and commercial feasibility study for a blue hydrogen plant in Teesside, North East England.

Arup were commissioned by Kellas Midstream, owner and operator of the Central Area Transmission System (CATS) gas import infrastructure, to conduct a feasibility study for a large-scale, blue hydrogen plant in Teesside and later the pre-FEED.

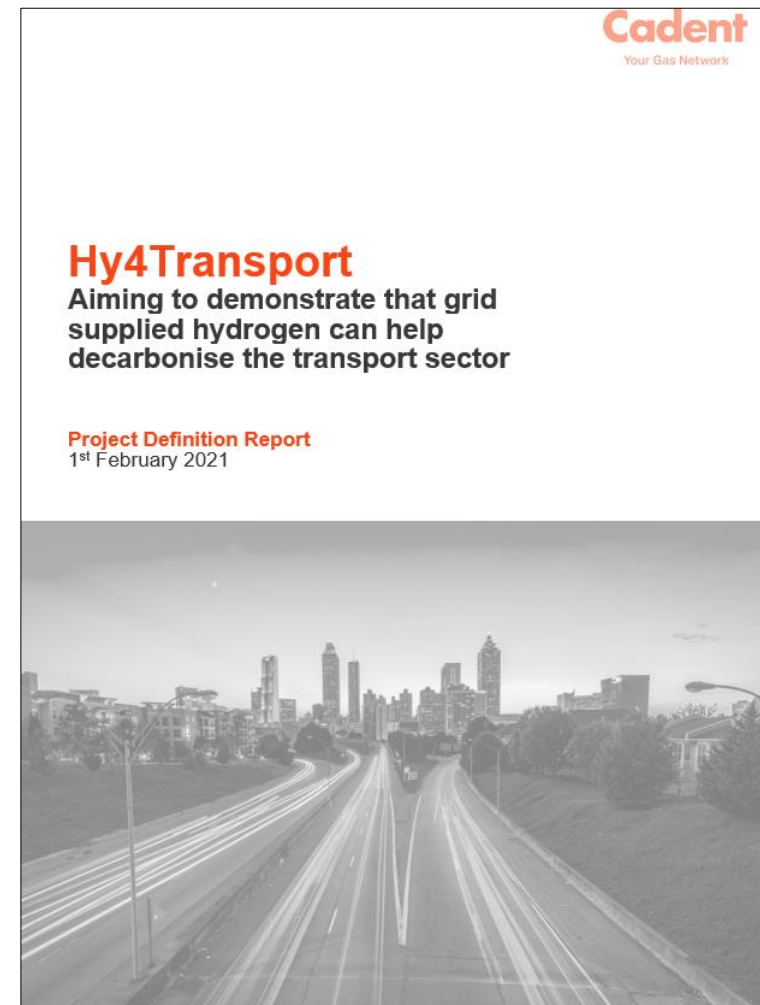
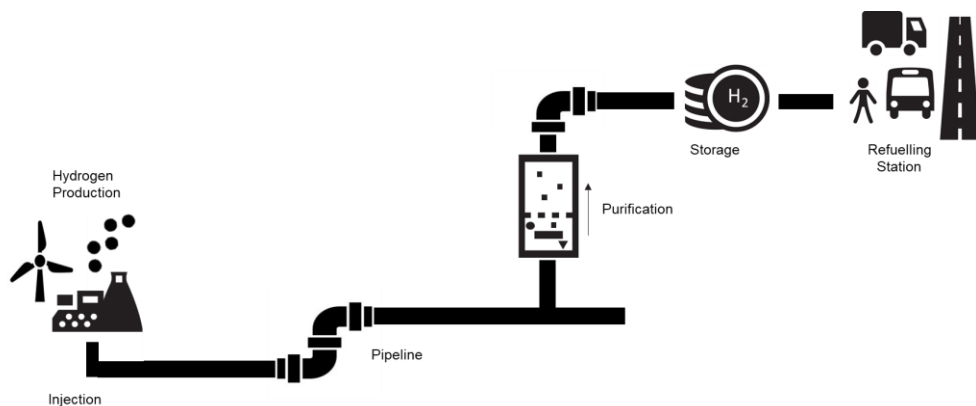
The Arup team undertook a comprehensive package of technical work, looking in detail at a number of key design considerations. This included developing a Basis of Design, carrying out a technology review, engaging with technology providers, conducting a siting and layout study, assessing how CO₂ will be processed and transported from the site and exploring how the transportation and storage of the hydrogen produced both for local and grid off-takers. The team also produced a cost assessment covering CAPEX and OPEX.



Hy4Transport

Suppling grid hydrogen to decarbonise the transport sector

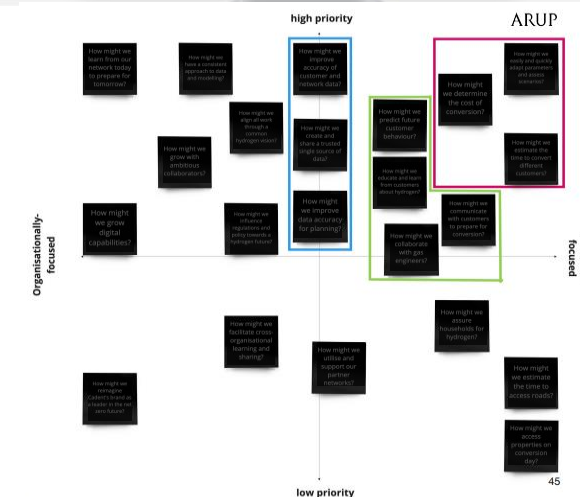
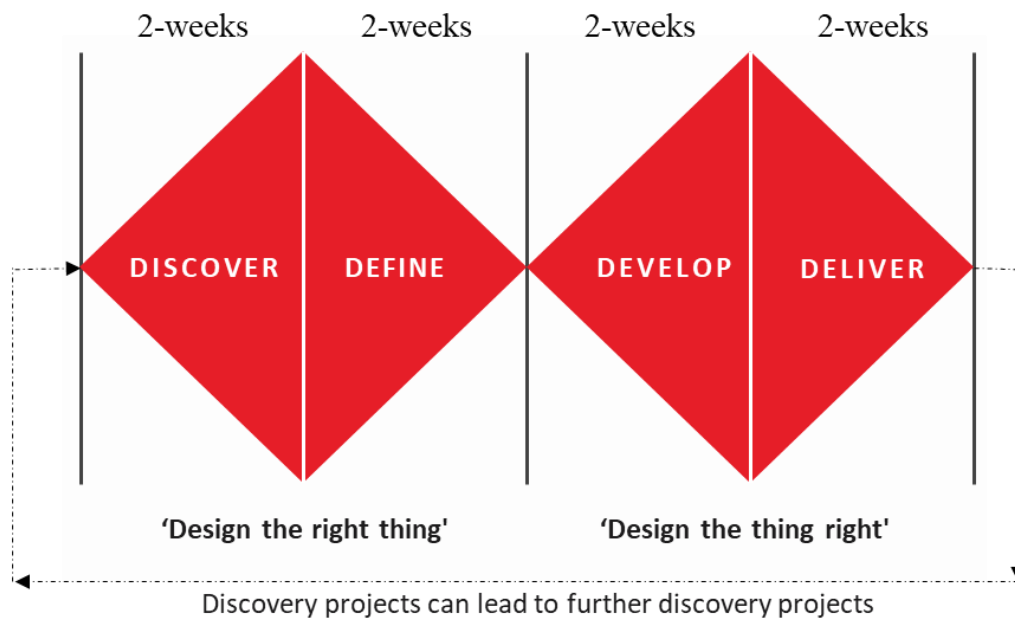
Arup lead the development of Cadent's Hy4Transport demonstration trial, which aimed to demonstrate that purification of hydrogen from a repurposed gas network can be technically, economically and practically used for fuel cell transport applications.



Digitalising Network Conversion

Supplying grid hydrogen to decarbonise the transport sector

Partnering with Cadent Gas and Google, Arup used a discovery methodology from the Government's Digital Service (GDS) framework to help Cadent prepare for a resilient hydrogen future and to develop a scalable and repeatable service that can be applied to other UK and international gas utilities as we seek to decarbonise our energy systems. The project aim to deliver digital solutions which could help in planning for a network conversion.



Most recent projects

- Cadent regional H₂ Vision
- HAR2 assessment and due diligence

ARUP