Alternative fuels

Our advisory and technical services are supporting the establishment of alternative fuels as viable clean energy resources.

FRAZER-NASH CONSULTANCY
A KBR COMPANY

We provide bespoke decarbonisation plans that are backed up by detailed data analysis and modelling, so that you can transition to a sustainable future, confident in the ability of your decarbonised fleet to meet your needs. Our modular, tailored solutions are technology agnostic, so you're not tied into a specific vendor or product. We can help you to:

- Meet the government's environmental targets
- Have confidence that your new decarbonised fleet will meet your requirements
- Gain a full understanding of the solution's cost, CO_2 savings and other KPIs
- Develop a full fleet decarbonisation plan
- Reduce costs, by optimising your fleet to your needs
- Begin implementing fleet decarbonisation sooner, by reducing the time to develop a solution

Our business-focused solutions include:

- Low carbon fleet modelling
- Business case support

Low-carbon fleet modelling

We know that you want to understand the operational and environmental impact of your organisation transitioning from diesel/petrol based fuels to alternative technologies, such as Hydrogen, or to the use of electric vehicles.

While these technologies can offer a number of benefits to society, such as reduced air pollution and noise, as well as improved fuel and logistical efficiency to your business, you may be concerned that their limitations could jeopardise the effectiveness of your fleet. For example, with time spent charging/refuelling and in maintenance, how can you ensure you have enough vehicles to meet demand? Will you have enough recharging locations to service your vehicles? These are key questions to which you need answers, prior to any investment.

We can help you to gain this understanding, by providing a solution that explores your fleet's decarbonisation scenarios within a digital simulation environment, enabling you to identify its effects on your business quickly and efficiently. By augmenting this model with your company data, we can deliver a bespoke solution tailored to your business's specific needs.

Business case support

In addition to the operational and environmental impact on your business, there are many other short, and long term, economic factors that you need to consider before embarking on a large fleet investment programme. Our financial expertise enables us to conduct economic appraisals of a number of viable scenarios, helping your organisation to choose the best route for its decarbonisation journey.

Either stand alone, or as a complementary service to our low carbon fleet modelling, our business case support enables you use the predicted operational and environmental changes to inform your business appraisal and investment decision.

Hydrogen

Our advisory and technical services are supporting the establishment of hydrogen as a viable clean energy resource.

Hydrogen is emerging as a key energy vector, with the potential to drive the change to a fully sustainable

energy infrastructure, including uses in heat infrastructure, industrial decarbonisation, as a fuel and in energy production. We support technology developers, industry and government in the hydrogen sector, which coupled with our expertise in parallel energy markets, enables us to provide valuable insight into current and emerging policy, technologies and project development.

Our engineering specialists help clients in engineering management to solve challenges in the development of hydrogen production and storage technologies, and end-use applications.

We have the expertise and track record to provide technical leadership in supporting hydrogen technology development, with the capability and expertise to provide you with end-to-end support from innovative concepts and prototypes, through to detailed design. Our multi-disciplinary technical teams can draw on significant experience in the following areas.

- Design assurance
- Fluid and thermal dynamics
- Materials performance
- Chemical engineering
- Software development
- Control system development
- Safety assessment
- Electrical design
- Independent technical assessment

Project design and development

We have a proven track record of designing equipment and supporting developers through each stage of the hydrogen project development timeline.

- We provide support to assess the initial viability of projects, as well as specific engineering services to design, optimise, and ensure project safety. This includes renewable energy options appraisal, integration and overall sizing.
- **Optioneering, Concept Development & Feasibility Studies.** An initial concept development stage where feasibility studies are undertaken to assess the business opportunity and to identify potential viable solutions for onward development.
- **Preliminary Front-End Engineering Design.** An information, data gathering and early design development stage to develop the conceptual design to produce a more defined scope. This stage of the project will increase the technical and economic detail, reduce risk uncertainty and form the basis of the basic engineering or Front-End Engineering Design (FEED) stage.
- **Front-End Engineering Design.** Development of the outcomes from the Pre-FEED stage to finalise the basic engineering documents. This stage develops the design basis to enable the detailed design documents and execution phase contracts to be developed and the final investment decisions to be made.
- **Detailed Design.** Progressing the FEED documentation and drawings to the point where the project can progress to construction and implementation. This is an important milestone in the project development process.
- **Construction and Commissioning.** We provide owners engineering support throughout these phases. This will ensure that the entire asset operates as a complete system following a site acceptance test of individual items through to satisfactory completion of performance tests and handover to the operations team.

Safety Assurance

We have a proven track record of delivering safety assessment and safety management services across the energy sector, including hydrogen projects.

Safety plays a critical role in enabling the development and continued operation of hydrogen production, storage, and usage facilities.

We work with both developers and operators, providing a wide range of services to deliver safety assurance at both equipment and strategic organisational levels, which help reduce the potential for harm to personnel and improve safety and operational efficiency.

Our strategic safety management skills help ensure operational safety. This includes:

- Safety management system and plan development to provide robust structured frameworks for achieving safety
- Development of staged safety cases that support installation, operation, and decommissioning, which demonstrate acceptable levels of risk and mitigation
- Safety policy, procedure and toolset development to improve safety culture and facilitate risk-based decision making
- Using tools such as Hazard Identification (HAZID), Hazard and Operability (HAZOP) and Failure Modes, Effects and Criticality Analysis (FMECA) studies to help set safety requirements and provide targeted recommendations to improve safety
- ATEX/DSEAR assessments, combustion and gas flow modelling