Low Carbon Projects & Solutions

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NIFES CONSULTING GROUP

Low Carbon Projects and Solutions

The relentless pressure of volatile energy prices and the growing raft of carbon reduction legislation are driving energy users to undertake comprehensive energy and carbon reduction programmes. More and more users are now finding that the biggest opportunities to make savings in both costs and emissions are available through investment in low carbon technology.

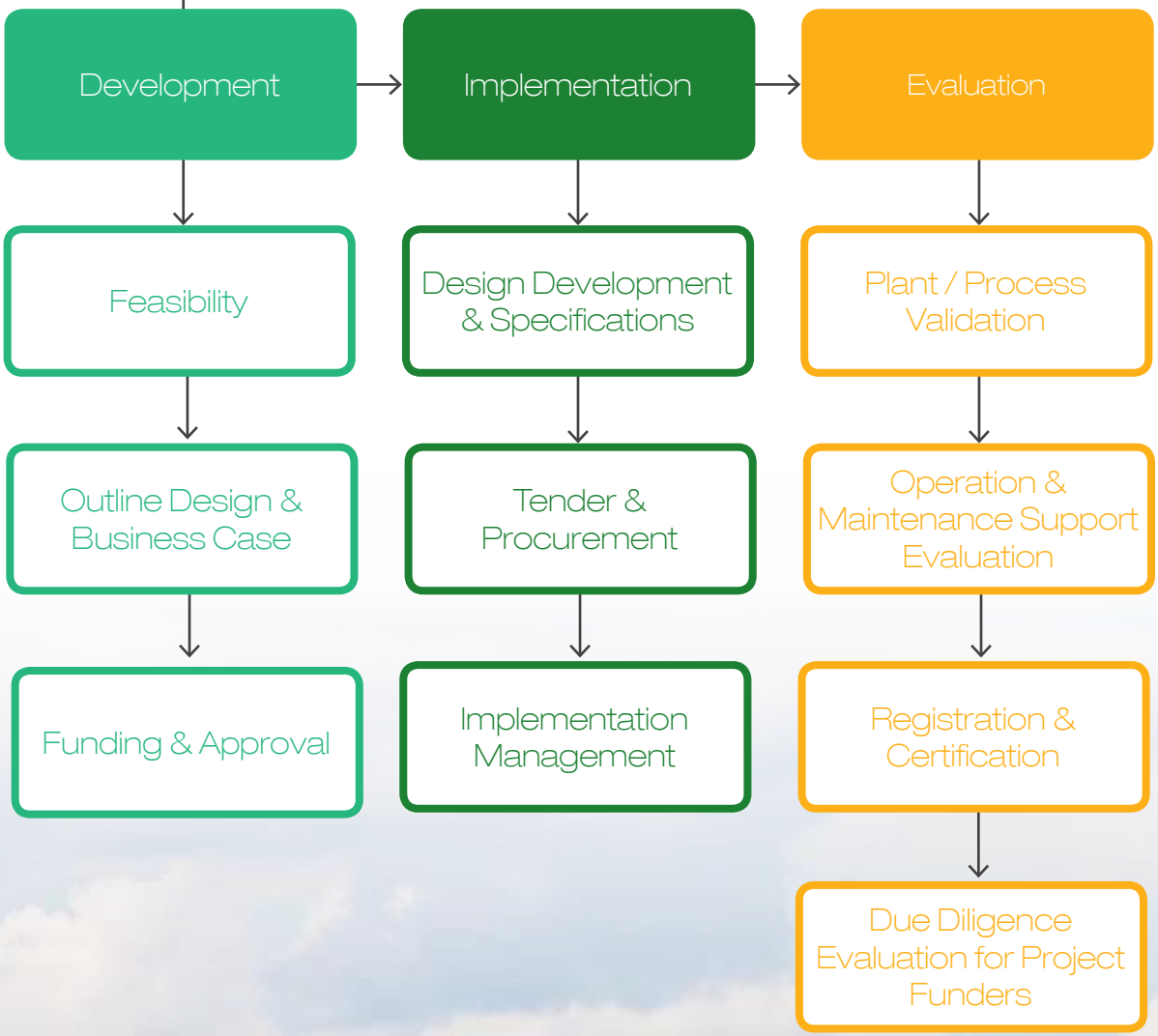
NIFES offers a structured end-to-end consulting process to take you from initial studies and development through to fully commissioned projects, based around a wide range of low carbon technologies.

We have over 300 people across the UK with years of experience and a successful track record of supporting the implementation of energy and low carbon projects which meet project targets and provide customers with the results they need.

Combined Heat and Power is a NIFES specialism and we are recognised as leading authorities in the application of this technology. Our skills also cover the entire spectrum of renewable energy technologies suitable for application by energy end-users.

This document provides you with an overview of the technologies we cover and the services we provide in delivering low carbon projects and solutions.

Low Carbon Projects & Solutions



Low Carbon & Renewable Technologies

Combined Heat & Power

Implementing and supporting installations from 100 KW to 50MW using gas engine, gas turbine and renewable technologies. NIFES has become the UK's most prolific, independent consultancy in relation to CHP feasibility studies and in the design and project management of CHP implementation schemes.

"We have completed over 1,000 CHP feasibility studies during the last 10 years."

Boiler-house Refurbishment

Refurbishing your boiler house is a great opportunity to invest in low carbon technology. Our wealth of experience, gained from a number of key refurbishments, allows us to deliver a first-class service to you throughout development, construction and commissioning.

Anaerobic Digestion & Biogas

We have been involved with this rapidly developing technology in design, technology selection, due diligence and project management based on farm crops and industrial waste. We have a successful track record of biogas CHP projects in the sewage treatment industry and in agriculture.

Integrated Energy Centres

NIFES are leading experts in the design, implementation and management of integrated energy centres encompassing thermal and electrical supplies from both conventional and renewable energy sources. Clients include leading manufacturers, hospitals, universities and commercial undertakings.

Ground-source Heat Pumps

NIFES has been at the forefront in promoting this technology in the UK, forming the secretariat for the Ground Source Heat Pump Network.

Biomass

We are involved in a number of biomass projects from schools to large industrial sites. Apart from the technology expertise, we have an in-depth understanding of the critical biomass supply chain. We have experience of projects ranging from a few hundred kW right up to over 100 MW, with and without associated CHP. Fuels have included wood chip, pellets and waste wood.

Building-Integrated Renewable Energy

We can provide a comprehensive review and implementation support for a range of technologies suitable for direct application on buildings. Our technological expertise is complemented by our building surveying and design capabilities.

Wind Power

We have a wealth of experience covering small and medium size wind applications, suitable for individual premises ranging from a few kW to 2 MW.

Photovoltaics

The potential of Solar PV has been boosted by the introduction of the Feed-In Tariff. NIFES consultants have been designing and managing the installation of solar panels across 1,600 dwellings for a leading housing trust.

"We are designing and managing the installation of solar panels across 1,600 dwellings for a leading housing trust."

Beginning your Low Carbon Project

Successful low carbon projects begin with the correct selection of technology, and a realistic assessment of implementation costs and operational benefits.

Once a business case has been put together, it must be backed by senior management and by the funding required to realise the project. It is then necessary to seek planning permission and arrange contracts with utilities providers.

NIFES will provide you with an experienced team who have been through this process successfully many times with a range of different low carbon technologies. We understand the opportunities and the pitfalls of the approval process, which means we can develop and present your project for approval at a highly professional standard. Our approach to developing low carbon projects has 3 key steps:

1. Feasibility Study	Energy profiling Technology options and selection Cost modelling
2. Outline design to Business Case	Design, concept development & detailed cost plan Permits and planning Risk management and compliance Contractual approach
3. Funding and due diligence	Approval Support

NIFES undertook an overview options appraisal for boiler replacement at the main Weetabix manufacturing site in Burton Latimer. We identified a combination of boiler plant and gas engine based CHP as the best option for the site.

Feasibility Study

Strategic energy investments require a detailed feasibility study to investigate the range of available options and to present a clear financial analysis in each case.

Heat, cooling and power profiles are gathered for existing and proposed operations to ensure the flow of energy is fully understood both technically and commercially. Detailed modelling of energy data ensures our projects deliver the expected benefits when they are completed. Our robust cost analysis includes detailed assessments of:

- Available incentive schemes including ROCs, CCL, CRC, FIT and RHI, and how they apply to various technologies under consideration
- Life cycle costs for CHP and biomass plant operation and maintenance together with capital invested are evaluated using discounted cash flow analysis
- Energy supply and export tariffs together with distribution (GDUoS) costs

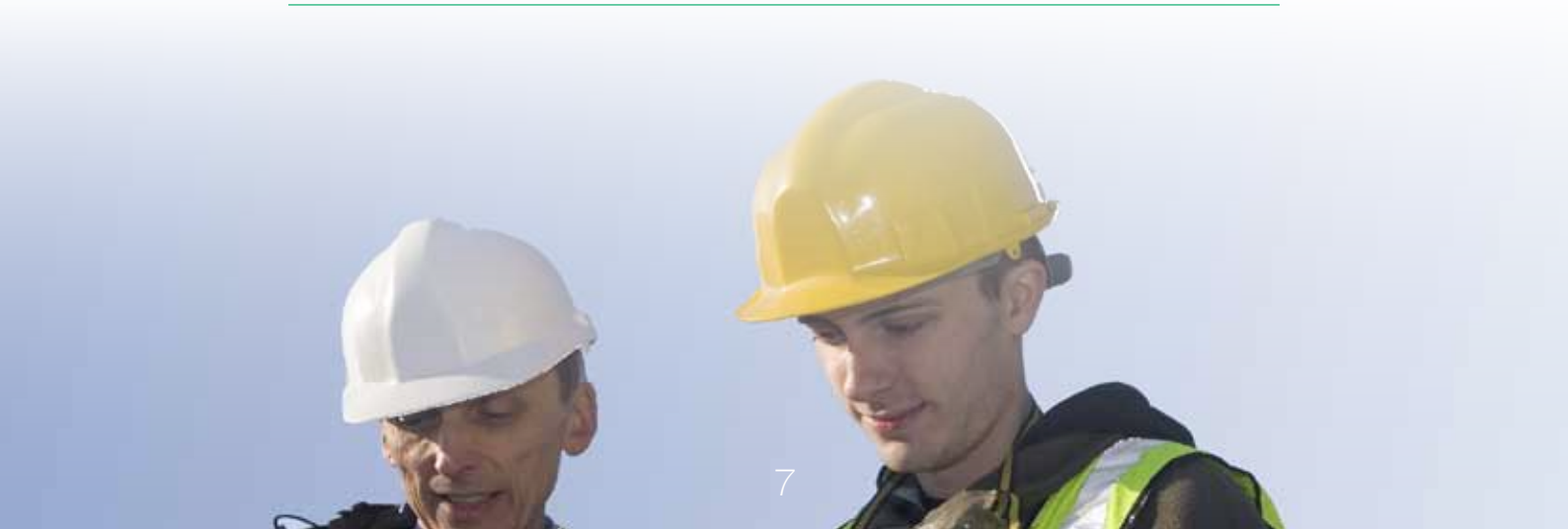
A thorough appraisal of technical options is essential to identify the best technical solution specific to your organisation. We have experience in assessing and implementing the latest boilers, CHP generation plant and many other renewable technologies.

Once this appraisal is completed, we can confidently recommend the preferred solutions and their benefits for your consideration and review.

Identify the best options for improved energy security in a time of reducing supply and increasing costs

Utilise accurate, 'tried and tested' cost models to assess the commercial feasibility of your project

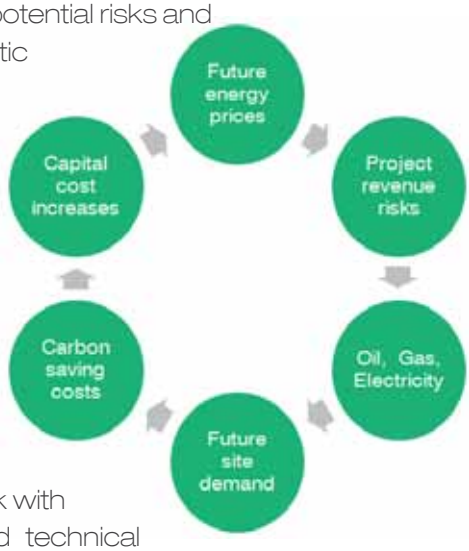
Understand the impact of different low carbon technologies on your organisation in terms of cost and carbon reduction



Outline Design to Business Case

A robust business case is the starting point for any low carbon project as this will secure the necessary buy-in to invest time, resources and funding into the project. If a project can not be demonstrated as being commercially viable, it is unlikely that it will ever get off the ground.

Our business cases are professionally written, based on robust data, and widely proven to be effective in securing approval and investment. Modelling the key factors affecting the project quantifies the potential risks and opportunities, so you can understand realistic long term benefits from an early stage.



There are many different choices you will be faced with when it comes to implementing and operating a low-carbon energy project. For example, your organisation might design, build and finance the plant, or you may choose to lease it from a contractor.

Not all of these options will be suitable to your organisation, however we can work with you and, through expert knowledge and technical analysis, identify the most beneficial approach to suit your requirements.

- Communicate the long term factors that will affect the performance and commercial viability of your plant, and demonstrate how these can be responded to
- Assess the different options for owning and operating your plant to ensure you make the right choice for your organisation

Project Approval & Funding

Low carbon projects often require significant levels of investment. In tough economic times it can seem difficult to secure the financing you need, as investors become increasingly risk averse and each element of your proposal is scrutinised.

We can provide you with professional support in order to secure funding and final approval for your project. We can guide you through due diligence processes for internal project approval with high quality submissions and presentations to your stakeholders.

Over the years we have developed an understanding of the exact information your investors will want to see before funding your project. Using this knowledge, we can work with you to secure 3rd party funding from banks, energy companies and equipment suppliers.

We have extensive experience of carrying out technical and commercial due diligence for major banks, and we can provide the same service for other companies that you are approaching for finance.

- Demonstrate your project to be profitable and secure funding despite the financial downturn
- Secure internal approval using high quality submissions and tailored presentations
- Minimise unnecessary delays in starting your project by smoothly negotiating the approvals process

UNIVERSITY OF LIVERPOOL

We were appointed as engineering consultants for the upgrade/replacement of the heating infrastructure (supply and distribution) at Liverpool University. The project encompassed mechanical and electrical engineering design, and support covering procurement, construction and contract administration.

Design, Development & Specifications

Once you have made the decision to proceed, we will assign a team of engineers to develop the design and specification of the project.

We aim to ensure that your project will be able to deliver the expected benefits over it's lifetime. The level of design support we provide depends on your requirements and can include:

- Piping and ductwork design
- Electrical analysis and design
- Steam, Water and Thermal fluids
- Gas and water services
- HAZOP Studies
- CAD
- Modelling
- CE compliance
- CDM coordinator

The formal design will follow best practice, taking account of cost and life-cycle performance, and current statutory and guidance notes are applied throughout. Mechanical, electrical and builders works drawings are produced using the latest CAD packages.

A multidisciplinary approach is essential when working with architects, structural and civil engineers. We have a flexible approach to specification, to suit the form of building contract in use; our experience includes MF1, JCT, and NES. We can support you with these arrangements, alerting you to any potential risks and how to avoid them. In all of our designs we follow our own quality systems and consider health, safety and operability throughout.

Ensuring your project delivers the performance required thanks to our cutting edge designs

Benefit from 50 years experience of energy efficiency projects

Ensure accuracy and efficiency with our ISO 9001 registered quality system

Tender & Procurement

A strategic approach to procurement ensures best value now and in the future, however for most organisations this is not core business and as such it can be difficult to make informed decisions without expert guidance.

Our approach to tendering is highly flexible and is tailored to your business priorities, the type of technology you are implementing, and your preferred funding route (self-financed, bank loans, ESCOs).

We can provide tendering services to suit your own systems, or we can help you to procure through OJEU if you are a public sector body. Whether you need a full tender management service, or would like to operate within your own procurement systems, we are able to help.

With many low carbon technologies, it is crucial that sound and financially viable Operations & Maintenance support is available with protection in terms of performance. We are able to assess the available options and help you choose the most suitable option for you based on our years of experience.

- Ensure a rigorous, fair and auditable tender process
- Increase efficiency by utilising the specific tender procedures most suited to low carbon projects
- Protect your organisation in the long run by securing the right kind of Operations & Maintenance support

InBev

NIFES were appointed by IUK to assess the feasibility of incorporating CHP into the existing boiler-houses at breweries in Samlesbury and Magor. Two 3.4MWe gas engines were installed at each location, whilst the sites were in operation, with only a minimum of interruption to production schedules to make essential connections.

Implementation Support

Once the final tender is agreed and the implementation process has begun, NIFES will be close at hand to ensure the project runs as smoothly as possible.

Support provided will cover a comprehensive range of necessary services and expertise. We will re-evaluate the business case, prepare cash flow projections and contract documents.

Throughout the implementation phase we will continue to manage your contracts and budget, to control costs and ensure you are getting best value from your contractors.

Once the necessary construction and installation work has been completed, we are able to provide support with commissioning and testing, providing you with confirmation that your project will be able to deliver in line with our design and specifications. Other elements of our implementation support service include:

- Business case update
- Construction and utility contracts
- Mobilisation and construction support
- Validation and certification
- Contract and financial management
- Site engineering supervision
- Commissioning and testing

Ensure delivery of your low carbon project on time and within budget, due to a sound foundation of design principles and contractual arrangements

Comply with all of the necessary legislation and registration obligations

Maximise the benefits of support and trading mechanisms

Lancashire Teaching Hospitals NHS
NHS Foundation Trust

Facing a shortage of power, escalating running costs, and Government demands for reduced emissions, Royal Preston Hospital turned to NIFES for a solution. A 1.8 MWe CHP plant was designed and installed, saving over £13,000 on energy costs every week.

Plant and Process Performance Validation

Under performing plant costs millions of pounds to businesses and public sector organisations every year. For organisations with low carbon generation this is compounded, as inefficient plant also results in lost revenue from energy sales and unclaimable subsidies.

For existing installations, we have reliably found that there are significant gains available through optimising plant performance. NIFES engineers have many years of experience in achieving this for our customers through systematic investigation and application of best technique technologies. The specific services we offer in this area include:

- Instrumented surveys and testing
- Performance evaluation
- Continuous monitoring
- Site investigations
- Re-commissioning

NIFES was founded in 1953 to assist organisations to optimise the performance of energy plant and processes, and we have been the foremost efficiency specialists in the UK for over 50 years.

Optimise the benefits of your existing plant to reduce energy overheads, boost revenues and further reduce carbon emissions

Maximise the return on investment of your low carbon on-site generation

Identify opportunities for efficiency to be improved further through technology upgrades

Operation & Maintenance Support Evaluation

Where ongoing contracts through ESCOs or other O&M providers are in place, we regularly find that these arrangements are not entirely favourable to the client.

We can review your contracts from your point of view to ensure you are obtaining the greatest possible benefit and that you are not subject to unfair terms. We have advised a number of clients during contract renewal negotiations and in each case have helped them to improve their Operation & Maintenance coverage.

Where there are legal disputes connected with energy contracts or technologies, we can provide expert witness services, and we have a track record of helping to obtain fair and valuable settlements for our clients.

We have over 300 staff covering a range of specialisms and disciplines. Whether you need support with energy procurement, carbon trading or any other area relating to your low carbon project, you can be sure that a vast range of industry expertise is available to you.

- Protect your position with ESCO, plant and supply service contracts
- Optimise the benefits you get from your service providers through independent, expert review
- Avoid or resolve disputes using our expert witness services

Registration & Certification Services

Alongside the range of subsidies that are available for low carbon generators, there is a corresponding selection of registration and certification obligations. Often, these are required in order to claim the relevant subsidy, or are simply mandatory by law.

Although many of these processes result in a benefit for you, often times they can be complex and time consuming. In some cases, by submitting registrations late or incorrectly, you could even be missing out on savings.

Depending on your specific requirements, NIFES can guide or undertake all of the complex registration and licensing tasks. Schemes covered include CHPQA, ROCs, LECs, FiTs and EU-ETS.

Our experts handle these processes on a daily basis which means they are fully equipped to manage your requirements, particularly if we are already working with you on your low carbon projects.

- Save time and resource by outsourcing your registration and certification obligations to the experts
- Avoid being penalised for late or incorrect submissions
- Comply with the administrative requirements of mandatory schemes such as the EU-ETS

Tullis Russell PAPERMAKERS

We assisted Tullis Russell to refurbish their 160 MW high-pressure steam boilers and turbines. We carefully managed 200 contractors during a complex and demanding 9 month programme to ensure that the Combined Heat and Power plant continued to meet the needs of the paper production facilities.

Why choose us?

Inenco has been supporting clients in all aspects of energy management since 1968. NIFES (National Industrial Fuel Efficiency Service) have been providing energy efficiency and buildings services worldwide since 1953. As a single company with pooled resources and expertise, Inenco / NIFES are ideally placed to offer tailor-made solutions to reduce energy costs and CO_2 emissions, and maximise building performance, in private and public sector organisations.

We have unparalleled experience and understanding of all aspects of energy and buildings management including policy, management commitment, data information, processing, technology applications and behavioural change.

With over 300 employees across the UK, we have the breadth of experience and capability to work with any type or size of organisation. Inenco / NIFES offer a range of energy, environmental and buildings consultancy services, which can be categorised under four key groups:

Energy & Carbon Reduction Solutions

- Management
- Compliance
- Trading

People & Management Solutions

- Policy & Strategy
- Standards
- Training

Low Carbon Projects & Solutions

- Development
- Implementation
- Evaluation

Building Services & Property Solutions

- Surveying
- Design
- Management

For more information, contact us using the details below:

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