

Consultancy Services

*Renewable Energy and Low-Carbon
Consultancy Services for Public and Private
Sector Clients*

LowC Communities Ltd

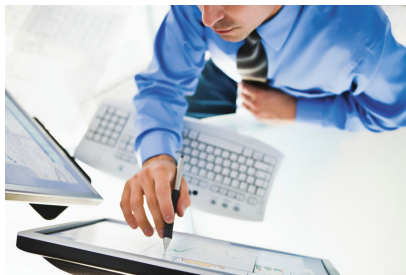
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LowC undertakes a range of renewable energy and low-carbon consultancy services for clients throughout the private and public sector.

We have extensive knowledge and understanding of drivers for implementing low or zero-carbon technologies, whether it be lowering carbon for new developments to meet planning requirements, achieve operational carbon emissions targets or to satisfy building regulations; or reducing running costs and generating revenues from the RHI, FIT and ROCs for existing sites - which are restricted to traditional heating and power methods.

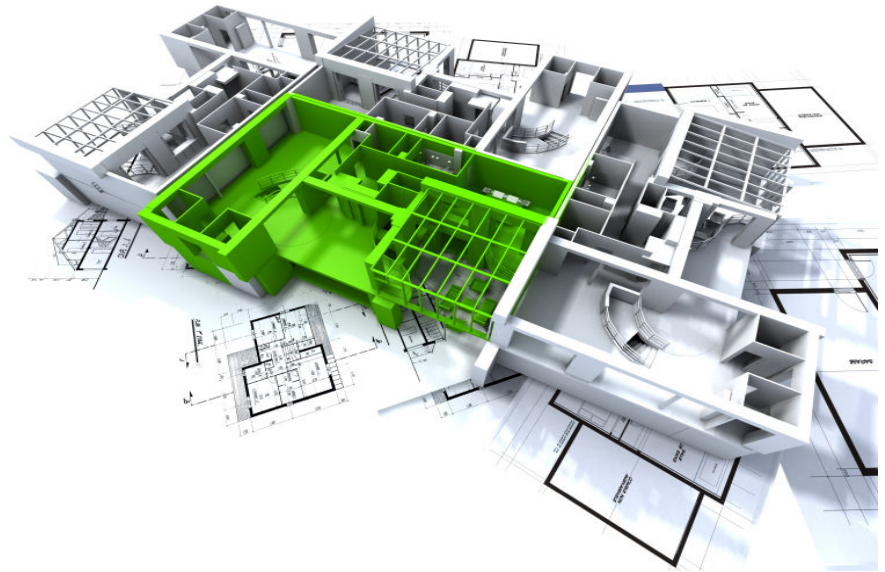
LowC takes a holistic approach towards achieving a low-carbon building – understanding the importance of reducing a building’s energy demand, through good building design and utilisation of passive measures, before the building’s energy source is considered.



Then, through in-depth site feasibility studies that investigate the technical, environmental and financial benefits of the options available, we can correctly specify a technology to suit the building’s remaining energy demands.

By carrying out detailed load profiling using our proprietary software modelling developed from real experience, we can accurately size the chosen technology to optimise its outputs against a building’s heating, cooling and electrical requirements, for every hour of the year.

The methods that have been adopted have made LowC a market leader in the low-carbon consultancy sector -securing a range of prestigious clients who previously have opted for a more traditional approach towards low or zero-carbon technologies.

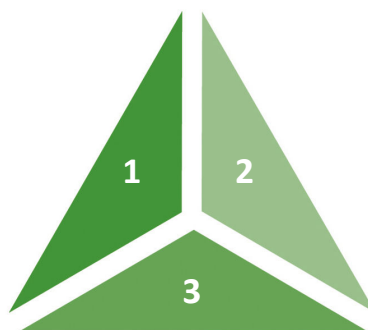


LowC helps contractors achieve stringent carbon targets for new schools in both design and operation – working closely with the design team we produce workable energy solutions integrated within low-carbon buildings.

Our team advises councils on their carbon reduction strategies as they prepare for future burdens under the requirements of the Carbon Reduction Commitment Energy Efficiency Scheme. We carry out low and zero and zero-carbon feasibility studies for private clients to ensure they get the very best advice on the range of technologies available to them so that they are well prepared for rises in energy costs.

Our Approach

LowC’s approach to low-carbon energy design has three distinct steps:



(1) Limit energy demand through rational use.

(2) Use renewable energy to fulfil demand.

(3) Then, if necessary, use fossil fuels cleanly and efficiently.

Services:

- Renewable energy feasibility studies
- Operational and life cycle financial modelling
- Detailed plant sizing assessment
- Flue studies
- Fuel strategies
- Building/site energy audits and recommendations
- Due diligence
- Educational seminars, energy awareness campaigns
- Low-carbon building design
- Financing strategies, ESCo concepts

Sectors:

- Education
- Healthcare
- Leisure and Hospitality
- Local Authority
- Community Heating

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CASE STUDY

Client: Central Bedfordshire Council (CBC)

Services: Due Diligence, Low Carbon Technologies Educational Seminar and Workshop, Desktop Study and School Site Energy Surveys.

Desktop Study and School Site Energy Surveys

CBC as an authority is responsible for approximately 140 primary and secondary schools which account for over 50% of the Council's carbon footprint. Recognising that its schools are responsible for a significant proportion of the Council's carbon emissions, CBC commissioned LowC to investigate ways in which to reduce the impact from its facilities.

Firstly a desktop study was carried out using CBC baseline energy data. We analysed each school's performance in terms of energy consumption, carbon emissions and cost, on a per-square-meter basis.

The result was a list of 10 schools which formed an 'Improvement Portfolio' – schools where the most significant improvements could be made and where investment would be most wisely spent.

At each school we carried out a site-wide energy audit, investigating factors such as heating systems, controls, lighting, user behaviour and building fabric.



For each site we produced a recommendation report for carbon reduction measures, ranging in cost of implementation and with predicted carbon, energy and cost savings – showing the payback periods. Our work was also absorbed into the Council's schools carbon reduction strategy, to be rolled out across its entire 140 school portfolio.

Due Diligence

For two of the Council's new school buildings, we acted as due diligence consultants, reviewing designs for the schools' energy supplies and assessing whether or not they would achieve the required carbon targets, in design and operation.

The results of one of the exercises were that the energy solution – a biomass boiler - was identified as being too large for the predicted energy consumption of the school.

We carried out a profiling exercise to match the demands of the school and concluded that the size of the boiler could be reduced to a third of the original size. This not only saved capital expenditure, but also ensured that the Council did not adopt a solution that would have no additional benefits.

For the second due diligence exercise, we challenged the design solution for a new school building which made some bold claims as to their operational energy and carbon performance. We acted to protect the Council by ensuring that the modelling used to demonstrate the performance of the building took into account the full extent of the actual energy use from the building in operation.

LowC produced a Modelling Brief, a document to prompt the designers to include full energy data and lay out the outputs in such a way as to bring a level of confidence that the energy demand data and hence consumption figures will best support the delivery of the project.

To protect the Council against inheriting a carbon legacy, we also ensured that the proposed energy performance criteria was integrated into the design and build contract – giving the contractor full responsibility for operational performance.

Educational Seminar

We delivered a seminar on the range of low and zero-carbon technologies available and their integration into new and existing buildings. Attendees included staff from throughout the Council's departments including: Building Control, Planning, Sustainability, Energy Management, Assets and Housing.



Part of the half day seminar included a workshop tailored to the Council's own requirements, where we investigated the quick wins for some of their current projects in terms of energy reduction and cost savings – discussing lessons to be learned from previous development projects.

CASE STUDY

Client: Carillion Buildings

Services: Renewable Energy Feasibility Studies, Plant Sizing Assessment, Fuel Strategy, Flue Analysis

Renewable Energy Feasibility Studies

We have been involved in a number of BSF schemes from project inception, working closely with the design team to produce a viable energy solution for new and refurbished buildings, designed to meet renewable energy and carbon reduction targets from planning, through Building Regulations, or set as part of the PFI payment mechanism.

Part of LowC's unique approach ensured that *operational* carbon targets were brought into the project at the design stage – utilising both realistic operational load profiles and considering innovative technologies whilst developing the energy strategy.



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The feasibility process began with an initial scoping and screening exercise, where we took the floor area of the school and calculated predicted baseline energy consumption - using either design data from our library of previous schools or from operational data from the client's own Facilities Management team.

This initial exercise gave an indication of the technologies that were applicable to the site. Then, in a workshop context with the design team, we discussed the available options, with the intention of cutting a long list of technologies down to a viable shortlist for further investigation and reporting.

This shortlist of technologies was then considered for more detailed analysis in terms of carbon emissions, technical and financial viability.

We also investigated the range of funding and financial incentives available for each shortlisted technology. The result was that either one technology, or a combination of technologies, was most suited to meet the schools energy demands and achieve the carbon targets.

Following the feasibility study, a detailed plant sizing assessment was undertaken with the chosen technology. This involved the creation of hourly heating and electricity profiles for the building to map its energy demands throughout the year.



This allowed us to size the choice of technology and associated ancillary equipment (back-up boiler, thermal storage, fuel storage) to match the buildings demands as closely as possible.

It also enabled us to have a clear picture of fuel requirements (where renewable fuels are used), storage volumes and delivery frequencies enabling the end user to effectively plan ahead and budget for their fuel.

LowC went on to build and operate the plant it designed at a number of BSF sites.

CASE STUDY

Client: Bedfordshire East Schools Trust
Services: Heating Upgrade Feasibility Study, Carbon and Energy Adviser.

Renewable Energy Feasibility Study

We undertook a feasibility study investigating the options for a heating system upgrade for an existing school, which was restricted to oil-fired heating. This study was particularly challenging due to the site's space restrictions.

CASE STUDY

Client: The Crown Hotel, Stamford
Services: Heating Upgrade Feasibility Study.

Renewable Energy Feasibility Study

LowC was commissioned to produce a detailed energy options appraisal for the hotel whilst it was in the process of carrying out a number of structural and service upgrades to stimulate growth.

Operational cost savings and limiting disruption to services were also important and - although not a renewable technology - we recommended a natural-gas-fired CHP system. This provided the best fit to the hotel's requirements as it offered optimal cost savings during its lifecycle.

CASE STUDY

Client: Laing O'Rourke
Services: Development of Renewable Energy Solutions for Morpeth PCT Health Centre.

This project was centred on the development of a renewable energy strategy for a new primary care facility in Morpeth.

A substantial focus was placed on the development of a renewable energy strategy which went beyond the requirements of Building Regulations and BREEAM -to ensure that the operational performance made a valuable contribution to the local Trust's carbon targets.

LowC was appointed by Laing O'Rourke as the main contractor.



CASE STUDY

Client: Cumbria NHS Trust and Laing O'Rourke
Services: Development of a third-party-financed energy centre proposal for the New West Cumbria General Hospital in Whitehaven.

LowC was appointed to develop the concept and execution for a new renewable energy centre as part of the above project. The strategy was to maximise the carbon saving potential to the Trust whilst removing the capital cost of the energy centre from the project budget. LowC developed an approach which would allow the Trust to maintain its current utility cost forecast, whilst greatly increasing the onsite carbon savings.

This was all to be achieved in a third-party-financed off-balance-sheet energy centre which would assist the Trust with budgetary constraints that have influenced the timing and scope of its site-wide re-development proposal.

CASE STUDY

Client: North Bristol NHS Trust
Services: Due Diligence of PFI Provider Renewable Energy Solution at Southmead Hospital.

LowC was appointed directly by the Trust and client advisor team to evaluate a biomass heat-based renewable energy proposal as the core energy strategy for the new PFI Hospital building at Southmead.

In the course of the study LowC identified several key shortcomings in the proposed strategy which included aspects such as boiler capacity, control philosophies, carbon savings projections, heat contributions and fuel strategies. These points were developed into a remedial action plan which greatly enhanced and protected the Trust's position within their contract.

Why LowC?

LowC is an organisation that understands how to integrate renewable energy generation into the built environment – whether it's domestic, commercial or industrial.

By understanding a building or community's operational heating, hot water, cooling and electrical demand and satisfying it with the most cost-effective form of low-carbon energy, LowC has managed to break down the barriers that have, until now, prevented the wider uptake of renewable energy generation technology, and prevented low-carbon communities from happening.

The renewable energy market is dominated by technologies and approaches which deliver low carbon heat only, or deliver very limited renewable electrical outputs against the demands of typical buildings.

High volume on-site electrical generation is often driven by fossil fuel such as gas for CHP units which as a result of their fuel inputs have a comparatively small impact on carbon reduction.

LowC has the single mission to make low-carbon communities happen. With expertise spanning building physics, low-carbon design, construction and renewable energy supply solutions, LowC can guide clients seamlessly through design, implementation and operation of renewable energy infrastructure.

LowC works with developers, property owners, private investors and government bodies across all sectors and functions. Offering four core business areas: consulting, technologies, construction and energy services.

Find out more

To find out how you can reduce both your carbon emissions and your energy costs, please contact LowC on telephone +44 (0)1778 590 074 or email info@lowc.co.uk

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