

*Agri ElectroGen is a proven, bio-liquid fuelled combined heat and power system that delivers cost-effective, low-carbon heat and power for a variety of applications.*

Having been available in the UK and Ireland for a number of years, LowC Communities' Agri ElectroGen range offers exceptional operational performance, with very-low carbon emissions or, putting it another way, substantial carbon emission reductions –even over traditional gas-fired boilers and grid-based electricity installations.

### Bio-liquid Fuel

Fuelled by Pure Plant Oil (PPO), it is ideal for a multiplicity of facilities from schools, hospitals and leisure centres to mixed use or residential District Heat Networks.

In the UK the feedstock is predominantly from Oil Seed Rape, but can equally be from Waste Vegetable Oil or combinations of non-fossil-based bio-liquids that have been proven to be from a sustainable source.



The PPO feedstock production follows a few simple steps by taking the stored Oil Seed Rape seed, crushing it, filtering it and holding it prior to delivery.

The whole process potentially takes place within just a few miles of where the oil will be used further reducing the carbon footprint of the facility.

There is no long distance transport to take the seed to a plant to convert it to bio-diesel and no high-intensity, carbon-consuming processes to convert it into a less-carbon effective fuel.

Current legislation identifies rapeseed oil as having a carbon intensity of 0.009 kgCO<sub>2</sub>/kWh – one of the lowest factors presently available.



### Simple Concept

The Agri ElectroGen system powers a Combined Heat and Power (CHP) unit that, in conjunction with a thermal store and 'top-up and back-up' gas fired boilers, delivers up to 70% renewable inclusion in the facilities where it is installed.

Whilst the bulk of the delivery of the UK's built environment continues to focus on producing renewable heat to meet the demands of planning requirements, the LowC Agri ElectroGen system targets renewable electricity – a commodity that, if supplied from the National Grid, is highly carbon intensive as a result of both the fossil fuels used and the inefficiency of distribution. Furthermore, renewable heating is being generated which offsets the need for gas or oil heating fuels being required onsite.

### Carbon Targets

The system's heat-to-power ratio offers one of, if not the most, cost-effective ways to meet the ever-more stringent demands of both the Code for Sustainable Homes and BREEAM (e.g. ENE 1 can take the benefit of nearly all of the available credits).

Where carbon emission targets have been imposed on a project Agri ElectroGen delivers among the highest carbon saved for each Pound invested.

The renewable electricity and heat delivered by Agri ElectroGen will support the delivery of high-end EPCs that reflect the regulated demands of buildings under Part L of the Building Regulations and Display Energy Certificates (DECs).

This relatively close heat-to-power ratio makes it well suited with a thermal store and gas fired boiler to the matching of power and thermal demands of a building, facility or community network - without dumping heat as seen so often with gas fired CHP units.

### Range of Units

The Agri ElectroGen CHP unit sizes currently installed or being installed - across nearly 20 projects - cover the range of 8 kW<sub>e</sub> to 400 kW<sub>e</sub>:

- **Agri ElectroGen 8**  
Produces 8 kW<sub>e</sub> and 18 kW<sub>th</sub>.
- **Agri ElectroGen 20**  
Produces 20 kW<sub>e</sub> and 35 kW<sub>th</sub>.
- **Agri ElectroGen 150**  
Produces 150 kW<sub>e</sub> and 143 kW<sub>th</sub>.
- **Agri ElectroGen 190**  
Produces 188 kW<sub>e</sub> and 176 kW<sub>th</sub>.
- **Agri ElectroGen 400**  
Produces 397 kW<sub>e</sub> and 382 kW<sub>th</sub>.



### LowC Communities Ltd,

Lodge Farm, Aunby, Stamford, Lincolnshire, PE9 4EE, United Kingdom.  
T. +44 (0)1743 590 074 | [info@lowc.co.uk](mailto:info@lowc.co.uk) | [www.lowc.co.uk](http://www.lowc.co.uk)

## Off-Site Manufacture

The Agri ElectroGen system can be provided as fully off-site-manufactured energy centre with a few elements of on-site interconnecting services to be completed upon delivery, or be fully built in-situ using skid-mounted elements of plant as best suits a client's requirements.

Where the principal elements are all off-site manufactured, this ensures repeated quality-assured engineering and a minimal on-site build time with a resultant low-carbon footprint for the construction process.



## Energy Distribution

The electricity produced can be used on site, distributed via a private-wire network or simply exported to the national grid. Heating, hot water and, if required, chilled water through the integration of absorption chilling, can be distributed as required – internally or via a buried network of pre-insulated pipes.

## The LowC approach

In supplying a complete turnkey Renewable Energy Centre the LowC approach will be to match the output of the Energy Centre to the demands of the building or facility and hence maximise the carbon reduction capability.

## Proven Technology

LowC have been installing the Agri ElectroGen system in the UK since 2008. There are 11 sites fully operational and a further two in commissioning during 2011 - with a pipeline of orders in design stage. This gives us unparalleled operational experience in the built environment.

The CHP engines are fully-warranted for the bio-liquids used and are now seen to be standard engine units for this purpose.

## A Sound Economic Case

With a plentiful supply of low-carbon heating, hot water, electricity and - if required - chilled water for air conditioning – the Agri ElectroGen system offers consumers low-cost energy with very low carbon emissions.

## LowC Communities Ltd,

Lodge Farm, Aunby, Stamford, Lincolnshire, PE9 4EE, United Kingdom.  
T. +44 (0)1743 590 074 | [info@lowc.co.uk](mailto:info@lowc.co.uk) | [www.lowc.co.uk](http://www.lowc.co.uk)

As a truly renewable energy generation system, the Agri ElectroGen range qualifies for payments under the Renewables Obligation Certificates (ROCs) scheme.

At the time of writing, we await the outcome of the consultations on the Renewable Heat Incentive (RHI) as to how the renewable heat element will be treated.

Available as a fully-financed, turnkey installation - with LowC taking the long-term responsibility for the ownership, operation and maintenance - the site's owner simply contracts to purchase low-carbon energy over a given period.

These long-term contracts for the supply of energy – typically between 15 and 25 years - provide long-term security against both fossil-based energy costs and their availability.



The energy price payable by the customer is guaranteed to be at a rate which is lower than the best traditional grid rates currently available - giving long-term security of costs.

## Operation and Maintenance

Remotely monitored from LowC's data processing centre, all systems are covered by a 24-7 call-out service that ensures the plant is available for operation round the clock.

With its high level of reliability, resilience and redundancy (depending on installed capacity) the system can be available for continuous operation or up to 51 weeks per year – allowing a week for planned annual maintenance where single engines are installed.

## 'Off-the-Peg' Solution

At LowC, we don't believe in reinventing the wheel every time we design a plant.

We have a standardised layout that has been developed over a number of years, drawing on operational feedback from fully-commercialised sites.

This not only ensures that the plant layout is optimised, but also removes unnecessary costs from the development and planning application process.



## Feasibility and Planning Support

LowC works with site owners every step of the way, from initial concept, through the planning approval process – ensuring that a project's transition from drawing board to construction goes as smoothly as possible.

## 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.

## 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](mailto:info@lowc.co.uk)