



Welcome to QUBE Renewables. Our powerQUBE technology uses biogas from anaerobic digestion to generate electricity and hot water in a combined heat and power generator (CHP), neatly packaged in its own pod.

Both of our Anaerobic Digestion systems - bioQUBE and quickQUBE - produce biogas which can be used as a fuel in a combined heat and power generator to supply electricity and hot water.

powerQUBE is our small combined heat and power (CHP) generator, neatly packaged up into its own self-contained pod, complete with control panel, connections and noise attenuation.

Key features of powerQUBE are:

- ▶ Packaged plant for easy transport, deployment and use
- ▶ 100% biogas including being able to start on biogas alone
- ▶ Pre configured with heat and power take off points
- ▶ Power generation linked to grid connection or as island mode
- ▶ Robust and efficient technology up to 30% electrical with additional 50% heat recovery (hot water)
- ▶ Size range from 3.2kW to 30kW electrical
- ▶ powerQUBE can be used very easily with other anaerobic digestion biogas system.

What is biogas?

Biogas is produced by the process of anaerobic digestion; this is when biodegradable matter is broken down by bacteria in the absence of oxygen.

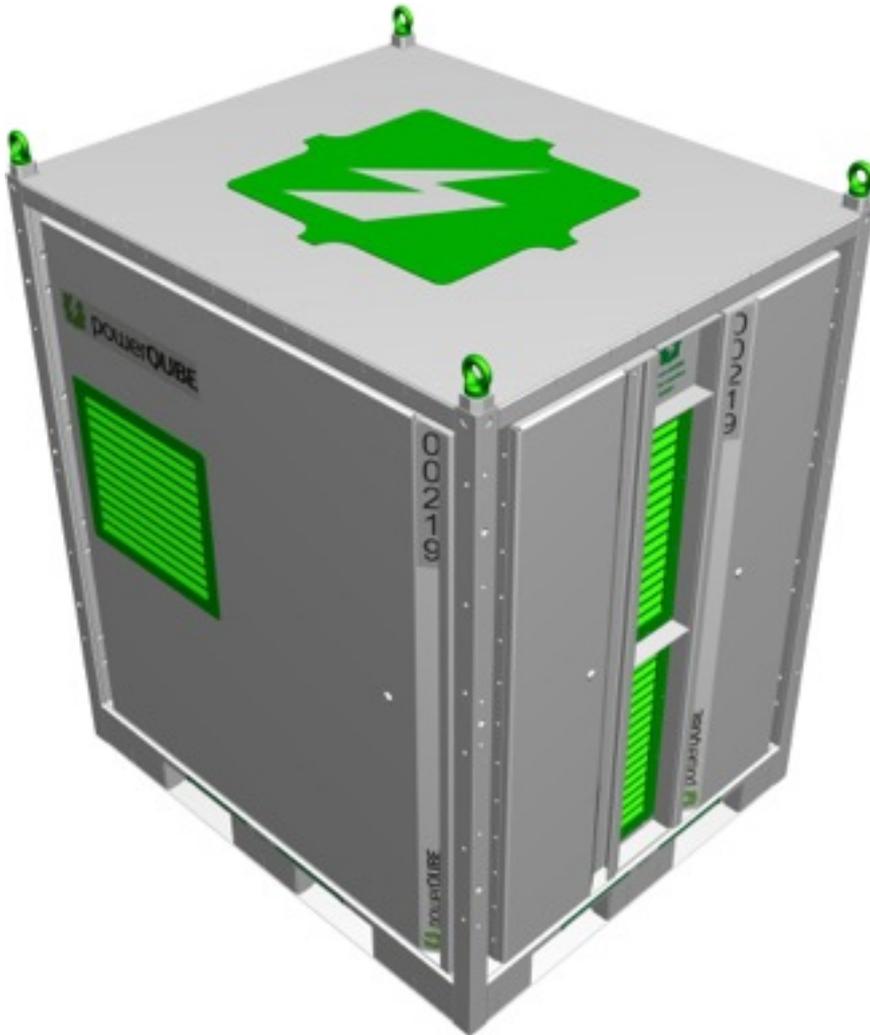
It comprises primarily of methane (CH₄) and carbon dioxide (CO₂). This gas can be combusted, and used as a fuel for a CHP generator.

What is grid connection or island mode?

The electrical set up in the powerQUBE system can operate in two modes:

- In **island mode** the powerQUBE is not connected to the local electricity grid, and supplies heat and power locally.
- In **grid mode** the system is connected to the local electricity grid to allow export. Generation is synchronous with the grid supply with the correct fail safes. The unit will automatically top up with electricity from the grid or export to the grid depending on demand.





The **powerQUBE** unit generates electricity and hot water from biogas and is packaged in a neat pod.

Standard Specification

- ▶ Water Cooled cylinder head
- ▶ Water cooled exhaust gas heat exchanger
- ▶ Overheating protection via secondary circuit pump and radiator
- ▶ Wet sump lubrication for long service intervals
- ▶ 12 volt starter with 12 volt gas shut down solenoid, energised to open
- ▶ High inertia fly wheel
- ▶ Engine control unit (ECU)
- ▶ Single or three phase AC 230/400V generator
- ▶ Generator protection
- ▶ Fuel use 0.8m³/kW/hr based on 55% CH₄
- ▶ Gas safety and sensing auto shut down
- ▶ Control panel and engine monitoring

Optional equipment

- ▶ Grid tie to link generator with grid, as per country specification
- ▶ Multiple generator synchronisation (daisy chain)
- ▶ Load share system
- ▶ Gas clean up system

PowerQUBEs are

- ✓ Modular
- ✓ Quiet
- ✓ Plug and Play
- ✓ Provide energy locally or to the grid
- ✓ Compatible with QUBE digesters or other biogas systems

