

**Case Study: AMW-IBERS Wetland
 Biomass to Bioenergy Project
 Installed 3rd March 2014
 Commissioned 1st May 2014**



Contents of QUBE system:

- Automated feed system with mono flow pump (no maceration)
- Two bioQUBE digester
- 14 kW powerQUBE CHP plant
- Heat exchangers
- Control panel
- Biogas storage bladder
- Connection points for export of heat and power - island and grid tie
- Digestate store
- PLC linked to GSM



Feedstock Specification:	Biodegradable wastes – soft sludges from Juncus pressing liquor and pot ale
System Type:	bioQUBE – 4 stage cascade system powerQUBE – 14 kW electrical, island and grid tie
Digester Dimensions:	H; 2,500mm x W; 2,100mm x L; 6,100mm (Standard 20ft Shipping container)
Digester Space nominal capacity	Modules of 18m ³
Units:	2 No.
Weight:	6,000kg as shipped approx. 24,000kg when filled approx.
Overall Footprint:	10m x 10m to include gas store and associated tanks
Engine (CHP):	Petter with Bowman heat exchanger
CHP generator size:	Peak power: 14kWe Peak heat: 20kWth
Electrical energy output:	84,000 kWh per year at (Electricity 29%) approx 6000 hours per year
Heat Output:	120,000 kWh per year (Heat 80% (as hot water at 60 – 80oC)) approx. 6000 hours per year
Efficiency:	Electrical 29% Combined 80%
Parasitic energy use:	Approx 8%
Grid export requirement:	Grid Tie G59/2 connection
Grid Connection:	3 Phase
Nominal Voltage:	415VAC

Safety features:	G59/2 grid connection with earth tying/bonding H2S and CH4 sensor for leakage detection and automated shut down Fault notification setting – GSM
Gas Output:	Biogas (approx 54% CH4 and 40% CO2)
Design flow rate:	8m ³ /hr
Gas store capacity:	18m ³ bladder standard
Bladder materials:	HPDE
CHP fuel consumption:	0.8-1m3 per hour per kWh
Permit Requirements (UK):	T25 exemption and an exemption for digestate spreading from the Environment Agency (UK only)
Routine Service:	Monthly (H2S and Moisture filter cartridge change) Engine oil check
Service Interval:	Engine oil change every 500 hours, spark plug, tappets. Full service every 3000 hours, timing, gaskets, head removal
CHP operating Temp min to max	45 to 75 degrees C
Sound level:	56 dBLeq at 10m.
Installation and delivery:	100% self-contained; placed directly from off-loading lorry (8 wheeler with HIAB crane for easy access) Digesters and other tanks installed on level, compacted hard core.
Net carbon balance:	Production and embedded carbon 88 tonnes Carbon payback from electricity and heat production 14 months
Warranty:	12 months on CHP, 5 years on digester
Service:	Annual contract available but excluded from the quotation
Technical Support:	Provided for the first 12 months of operation
Design Criteria:	Designed to meet ATEX and DSEAR safety regulations and compliant

For further information please contact:

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