

Case Study



Sandon Dock Waste Water Treatment Works



Client	Capacity	Location	Operational
United Utilities	1.8MWe & 2MWt	Liverpool, Merseyside	2002

Manufacturer	Packager	Type	Primary fuel
GE Jenbacher	Clarke Energy Ltd, UK	1 x 1MWe JMC 320 GS-B.L 1 x 1MWe JMC 316 GS-B.L	Biogas

Sandon Dock was the first ever treatment works to serve Liverpool and Bootle. For over a hundred years, the city's wastewater was discharged directly into the Mersey river.

The CHP modules consist of reciprocating gas engines driving individual 415 V generators. Each engine is fitted with an exhaust gas heat exchanger. The outputs from the generators are connected by a ring main unit to individual 415 V/11 kV transformers, thence to the site's distribution system.

The GE Jenbacher engines are high speed spark ignition type, with 16 and 20 cylinders respectively. Each engine has a sophisticated Leanox closed loop fuel control system, this maximises efficiency and provides reliable compliance with allowable NOx emissions.

Each CHP module has a waste heat recovery system that utilises the heat from each engine's air, oil and jacket water cooler, along with its exhaust gas heat exchanger. The waste heat recovery systems of the individual CHP modules transfer heat via individual plate heat exchangers to the digester heating water system.

The digester heating water system was an existing system, modified when the CHP plant was installed in 2002. The system has two boilers connected in parallel with each other and in series with the digester water heaters. The boilers operate in the event of a shortfall of the heat supply to the digester heaters, such as that caused by module maintenance.



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