



## Case Study: Crai WTW

**Client: Welsh Water**

**Application:**

Raw water pressure control entering the treatment process

**Key facts:**

- Difgen Model: DG18-52 x2
- Differential Pressure: 4.5bar
- Flow Range: 100 to 320l/s
- Power Output: 80-95kW
- Annual Revenue: 162,000 GBP
- Payback Period: 3.7 years

**Background:**

Crai Water Treatment Works is gravity fed from the nearby Crai reservoir with raw water at a pressure of up to 7 bar. The raw water is fed into an open mixing tank so this pressure is not required for the process and would have previously just been removed through a pressure reduction valve. As the end of the pipe into the DAF plant is elevated to a height of around 20 metres, normally a turbine would have had to be mounted at this height which would have proved challenging and expensive.

**The solution:**

Welsh Water chose to use 2 Zeropex turbines which could be sited at ground level. Due to their unique operation, they could generate renewable electricity whilst maintaining a minimum pressure on their outlet, which allows water to enter the elevated tank. The turbines also control the raw water flow into the treatment process by controlling their speed to match the desired flow. To allow a seamless operation, the Zeropex turbines are equipped with a load bank which allows the turbines to continue running even when the electricity supply from the grid fails which allows a controlled shutdown with no hydraulic issues resulting.



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