PURIFYING POWER: VEOLIA DELIVERS ESSENTIAL WATER TREATMENT UPGRADE FOR UK ENERGY RECOVERY FACILITY

CASE STUDY | Power

| The client's needs

Energy recovery facilities play a critical role in resource and waste management infrastructure, where non-recyclable household rubbish is turned into electricity instead of being sent to landfill. Waste is burned under controlled conditions, producing heat that creates steam which then drives turbines to generate power; a process that requires reliable utility systems to maintain continuous operation.

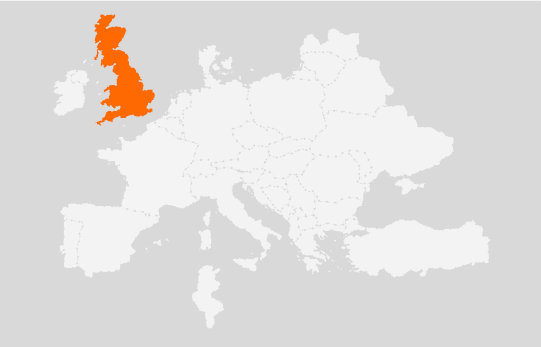
When it became apparent that the existing water treatment system at an Energy Recovery Facility (ERF) was no longer meeting optimum performance requirements, Veolia was on hand to deliver an innovative deionisation solution.

The project involved the replacement and upgrade of the ageing, inefficient system which could not keep up with the site's current operational demands. Parts of the system also required manual intervention on a regular basis and this was becoming untenable.

| The solution

The ERF required an advanced water treatment technology capable of supporting ever-increasing demand whilst overcoming several key challenges onsite.

Restricted space was an issue, and separate mobile water treatment assets could not be deployed due to physical footprint constraints. Moreover, continuous operations meant that there could be no plant downtime whilst upgrading work was being undertaken.



ENGLAND



> Working within the site's operational and space parameters, Veolia Water successfully upgraded and replaced our obsolete water treatment plant, completing the installation and commissioning whilst we continued to operate.
>
> *The Client's Maintenance Manager*

In order to accommodate these challenges, Veolia implemented a replacement deionisation system comprising three key elements:

- Rapide Strata+ industrial deionisers: These units produce high-purity water for boiler feed systems, reducing scaling caused by calcium, magnesium and other dissolved minerals, and minimising corrosion in boilers, pipework and steam systems. High-purity boiler water is essential as even small amounts of dissolved contaminants can cause fouling, corrosion and unplanned outages.
- A bespoke automation system: These systems automatically monitor and control the water treatment process and quality parameters such as conductivity, pH and flow. Automation helps ensure treated water consistently meets specification, reduces operator workload and risk of human error, enables early fault detection, improves process consistency and reliability, and reduces downtime, whilst enabling performance data to be logged for regulatory compliance.
- Upgraded activated carbon filters: These modernised filters remove organic compounds, chlorine, odours and other contaminants before deionisation. They protect deionisers from contaminants that can reduce resin performance and lifespan, improve overall treatment efficiency, extend the service life of downstream equipment, and help reduce operating costs.



| The benefits

The upgraded system delivers significantly greater utility efficiency than the previous installation, reducing the use of water, energy and treatment chemicals.

Moreover, the automation of some equipment means more consistent operation and reliability without any manual intervention.

The solution also supports the client's sustainability objectives through improved efficiency and greater operational reliability.

| Results

The three key elements of the new deionisation system inherently complement each other: the Rapide Strata+ deionisers produce the high-purity water required for boiler operation; the activated carbon filters improve incoming water quality; and the bespoke automation system continuously monitors and optimises the entire process. Together, they provide:

- Better water quality and a more efficient treatment system
- Improved boiler and turbine protection
- Greater plant reliability
- More consistent operation with the elimination of manual intervention on existing equipment
- Reduced maintenance and chemical costs
- Increased operational efficiency
- Improved environmental and regulatory compliance.

Energy recovery facilities play a vital role in sustainable waste management, diverting non-recyclable waste from landfill and transforming it into valuable energy for local communities whilst contributing to a more circular economy. Veolia is proud to support these important resource recovery hubs through the implementation of innovative water treatment solutions that improve operational efficiency, reliability and environmental performance, helping to ensure they continue to operate safely and effectively.

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