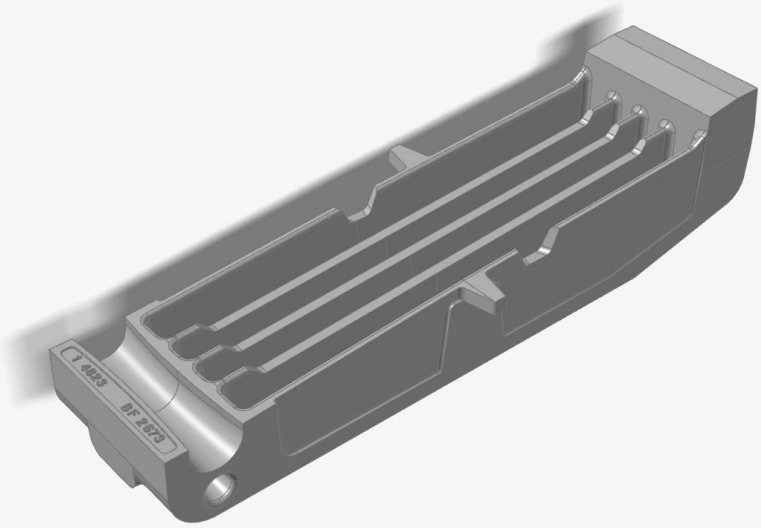
Boro Foundry Engineering Innovation Helps Energy Recovery Facility Avoid Unplanned Stoppages Costing Over £100,000 Each

STOURBRIDGE, WEST MIDLANDS, UNITED KINGDOM, September 30, 2026 /EINPresswire.com/ -- Boro Foundry, a leading UK manufacturer of high-integrity industrial castings, has demonstrated the power of collaborative engineering by delivering a major reliability upgrade at an Energy Recovery Facility (ERF) in the West Midlands. Through a complete redesign of the facility's critical boiler grate bar system, the project eliminated grate-bar-related downtime on a test boiler over a seven-month trial, saving an estimated 200 hours of maintenance disruption.



Grate Bar CAD



EfW Plant on a Planned Shutdown

The facility processes non-recyclable household waste to generate electricity for thousands of homes. Operating continuously at temperatures between 800°C and 950°C, the plant faces severe operational pressures. In recent years, changing waste streams (specifically the influx of discarded nitrous oxide canisters which can explode) created sudden shock loads that displaced and damaged existing grate bars.

Because cooling, repairing and restarting an incinerator boiler takes upwards of two days, each unplanned stoppage costs the facility more than £100,000 in lost operating time, repairs and interrupted power generation.

Engineering for Resilience and Maintenance Efficiency

Building on a partnership that began in 2013, Boro Foundry worked alongside the ERF engineering team to develop a bespoke, high-durability casting solution. Rather than simply supplying direct OEM replacements, Boro re-engineered the grate bar system to feature:

• Extended interlocking "ears": Strengthening neighbouring component connections to withstand explosive shock loads.

• Mechanical dowelling: Securing grate bars against displacement while maintaining essential thermal flexibility.

• Maintenance-focused design: Simplifying bar removal to drastically shorten turnaround times during emergency repairs and annual maintenance shutdowns, where up to 40 tonnes of grate bars are routinely replaced.

Proven Field Results

In a direct comparative trial conducted between June and December 2025, the redesigned system was installed on one boiler, while a second boiler retained the legacy design. The results showed:

• Zero unplanned failures: The boiler equipped with Boro's redesigned grate bars experienced zero unplanned stoppages due to grate bar failure.

• 200 hours saved: The legacy boiler suffered five separate stoppages during the same period, representing an estimated 200 hours of avoided downtime for the upgraded unit.

Closing the Materials Loop

Beyond design enhancements, the partnership established a sustainable, closed-loop recycling process. Worn, heat-resistant grate bars are returned directly to Boro Foundry's UK facility, where the alloy is reprocessed into new castings. By bypassing traditional scrap merchants, this model cuts raw material purchasing costs, streamlines the supply chain, and yields an average saving of £60,000 per year for the facility.

"In continuous, high-temperature operations, the true value of a casting extends far beyond its initial purchase price," said Sam Edwards, Sales Director at Boro Foundry. "This project demonstrates how focusing on total cost of ownership, collaborative design and localised supply chains can protect critical infrastructure, reduce operational stress, and deliver substantial commercial savings."

To learn more about Boro Foundry's casting expertise and engineering solutions for heavy

industry, visit www.borofoundry.co.uk.

Sam Edwards
Boro Foundry

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