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Modernising Steam Systems for Performance and Long-Term Value

At a Glance

- Replacement of ageing, oversized fire tube boilers with right-sized steam generators
- Full design scope delivered from concept through to detailed design, tender support and commissioning
- Integration of new plant within existing boiler house infrastructure
- Improved system efficiency and reliability.
- Long-term reduction in lifecycle asset costs and environmental impact

Reassessing Steam for a Changing Site

Projective was appointed to design and deliver a modern steam generation solution for a pharmaceutical manufacturing site. The existing fire tube boilers, installed over three decades earlier, were no longer aligned with the site's operational needs. As the facility evolved, the steam system had become inefficient, oversized and increasingly difficult to maintain.

The objective was to: replace the outdated infrastructure with a right-sized, future-ready solution that would improve performance, reduce emissions and support long-term operational resilience.

Navigating Complexity

The project presented several technical and logistical challenges. The site's steam demand had changed significantly, but data across the network was limited. This required a detailed analysis of both current and future requirements, supported by system modelling to estimate demand where direct measurement was not possible.

The new plant also needed to be integrated within the existing boiler house footprint, requiring careful spatial planning and coordination. Crucially, steam supply to the site had to be maintained throughout the installation, necessitating a phased approach supported by temporary boilers.

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Solution Summary

500 tonnes of CO_2 saved annually

£65,000 in annual cost savings

Enhanced system efficiency and reliability

Improved Reduced lifecycle asset costs

Designing with Precision, Delivering with Care

Projective began with a comprehensive survey and analysis of the site's steam system, working closely with the client's engineering and operations teams to understand both current usage and future demand.

We led the design process from concept through to detailed design, supporting the tendering, implementation and commissioning phases. Projective's collaborative approach ensured alignment with client expectations at every stage, while maintaining compliance and minimising disruption to ongoing operations.

A Future-Ready Steam Solution

The three remaining operational fire tube boilers (total of 22MW) were replaced with two 4MW steam generators. This right-sized solution delivered steam at the required pressure and flow, significantly improving system efficiency and reliability.

Key elements of the solution included:

- Integration of the new plant within the existing boiler house, including reuse of the existing flue
- Replacement of oversized main distribution pipework to better match demand and reduce energy losses
- A phased installation strategy to ensure uninterrupted steam supply during the transition

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