



Department for
Business, Energy
& Industrial Strategy

British Sugar Heat Recovery Project

Industrial Heat Recovery Support (IHRS)
Programme Case Study

April 2021

Context

British Sugar turns 8 million tonnes of sugar beet into 1.4 million tonnes of sugar each year. The Cold Raw Juice Chemical Cleaning project was executed at our sugar factory in Cantley, UK.

The objective of the project was to install a dedicated chemical cleaning system for our existing Cold Raw Juice plate heat exchangers to improve their heat transfer performance in heating Raw Juice. By doing so, we identified a significant energy recovery project and the opportunity to prevent high risk intrusive maintenance activities during our campaign operations.

How IHRS supported the project

The objective was to recover more heat from the waste condensate stream (an additional 4.5°C) by installing a more effective chemical cleaning system, reducing fuel consumption in the boiler house. Mitigating the need for hazardous manual cleaning of the heat exchangers was key. The system was to be installed before the 20/21 operational period and have a simple payback of less than four years to meet the required hurdle rate for internal cost reduction funding.

At British Sugar, cost reduction projects need to deliver a threshold Return on Investment (ROI) to be attractive (20% over three years). Without the support and funding of the Department for Business, Energy and Industrial Strategy's (BEIS) Industrial Heat Recovery Support (IHRS) programme which is designed to encourage and support investment in heat recovery technologies, thereby helping businesses to lower their fuel costs, reduce waste heat and cut emissions, this threshold would not have been met neither the capital funding granted. The application process is very thorough and ICF provided support and guidance at each stage of our application.

Benefits and added value

The Cold Raw Juice Chemical Cleaning project execution is now completed. The IHRS program funding of £50k towards capital costs ensured the project threshold return on investment was met which helped to secure the required project funding to compete the project.

Over the anticipated 20-year lifetime of the installation, the fuel benefit of 33,000+ MWh, total lifetime carbon benefit of 6,000+ tonnes CO₂ and total annual cost benefit of £37,500/year will be delivered. Further benefits can be seen, as the need for high risk invasive maintenance work on the heat exchanger packs is eliminated.

Lessons learned

Another challenge of the project was to complete the very thorough IHRS application process. For British Sugar, this project was the first IHRS application and proved a steep learning curve for all on site. However, with the allocation of sufficient resource – and the support of ICF – we completed the application, was awarded the required funding and achieved an adequate return on investment to gain capital funding.

“The IHRS application has enabled the execution of a number of energy recovery projects at British Sugar that would not have been executed without the support and funding from this essential programme.” (Will Dunster, Project Engineer, British Sugar Cantley Factory)



A machine with pipes cleaned with chemicals to improve heat recovery

This publication is available from: www.gov.uk/guidance/industrial-heat-recovery-support-programme-how-to-apply

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