

We are working with a leading petrochemical company that is actively seeking knowledge, innovative technologies and products to **improve the efficacy of their heat exchangers / heat exchange process installations.**

Heat exchangers are typically employed as a means of providing heat transfer between two streams of fluid across a medium, and thus their optimum efficiency is vital for the smooth functioning of the system. Some of the biggest challenges to this operation for our client are - 1) fouling (the unwanted deposition of salts, coke and heavy organic/inorganic compounds onto active surfaces, thereby reducing heat exchanger efficiency over time), 2) economical use of the steam/fuel gas surplus and 3) heat recovery from relatively low temperature process streams.

Our client is therefore interested in any potential solution that it could implement in the short to medium term and is keen to connect with individuals, research organisation and companies that could have relevant expertise, knowledge, technology or products, in the following areas:-

1) Anti-fouling solutions for heat exchanger surfaces

Fouling reduces the effective heat exchange surface area available and results in inadequate/reduced flow. Therefore, a main focus area for our client is to understand fouling, implement ways to prevent - and predict it and cost-effective cleaning/scrubbing methods to remove it (physically or chemically). Current practise involves chemical and/or mechanical cleaning. Solutions could include, but are not limited to:

- Simulation/modelling/monitoring systems and/or new lab analytical methods to help understand and predict the cause and degree of fouling, triggered by use of mixes of different heavy crudes upstream
- Anti-fouling or low-friction coatings/finishes
- New design criteria and/or component materials/geometries resistant to the build-up of organic and inorganic fouling
- Novel additives/technologies to prevent fouling
- Cost-effective ways for cleaning the equipment, to minimise downtime costs

2) Improvements in the steam networks for better economical use of their steam/fuel gas surplus

The client often but not continuously has an excess of steam and/or fuel gas in its network. Most is fed back as energy into the processing but much is also wasted by “flaring off” in case of fuel gas or condensating in case of steam. The client does have some systems in place to manage these excesses (e.g. optimization systems for steam, but not for fuel gas network), however they are keen to *identify expertise, technologies and products to capture, store, or quickly modulate the pressure or to use the excess steam and fuel gas in a different “value generating” application.*

3) Heat recovery from relatively low temperature process streams

These streams can be liquid or gas and are at temperatures in the range of 100°C - 120°C. At such relatively low temperatures it is a challenge to recover the residual heat cost-effectively, and thus our client is *seeking technologies to recover, accumulate and utilise this excess heat/energy. These streams are not significant flows and are dispersed throughout the industrial site.*

The client is open to reviewing emerging or established technologies, or those from other industries, and is willing to explore any reasonable commercial arrangements including licensing agreements, joint product development, joint ventures, acquisitions, supplier relationships etc. Please send any preliminary information on a relevant submission to the project leader for this search, Fatuma Baraza at fatuma@strategicallies.co.uk. This non-confidential information should include current status / technology readiness, experience in this or related sectors and capabilities for development / collaboration. Thank you!