



Smartrec

Smartrec Project Newsletter

Issue 1 2017

Project to develop technology to capture and reuse waste heat in industry is now at the 6 month stage



The Smartrec project aims to develop technology capable of recovering at least 40 per cent of the waste heat lost in an industrial process. This energy will then be available for either reuse by the same process or redistribution elsewhere within an industrial park.

Analysts have estimated the amount of energy potentially recoverable from industrial waste heat in Europe alone to be as much as 140TWh each year – enough to supply all of Greater London's electricity needs for more than three years.

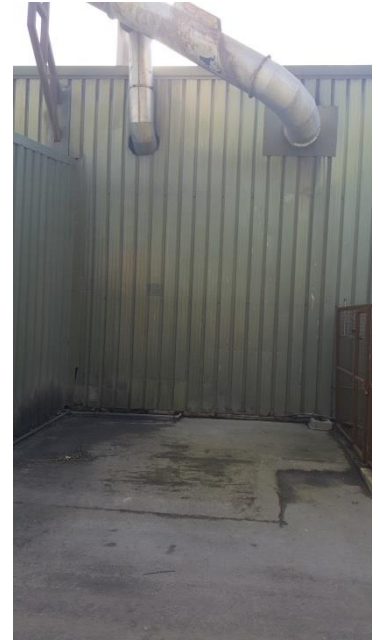
The technology developed in the Smartrec project will focus on recovering medium- and high-grade heat, which accounts for anything over 100°C. The project team has identified secondary aluminium recycling and ceramic processing as two industrial processes with good potential for heat recovery, but doing so will present many challenges.

These processes are batch-based rather than continuous, producing flue gas that varies greatly in temperature, so the system will need to be capable of recovering energy from an intermittent and inconsistent source. The hot waste gas is also likely to be highly corrosive, meaning the recovery technology will have to be capable of withstanding aggressive substances.

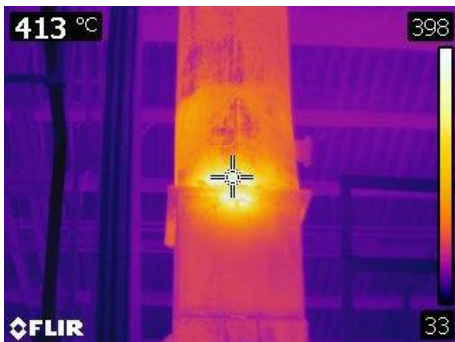
Smartrec, which is receiving funding from the EU Horizon 2020 innovation programme, is set to last for three years. It is being coordinated by UK-based company ALTEK, with the rest of the consortium being made up of TWI from the UK, French Research Organisation CEA Tech, UK company Econotherm, the Spanish ITC-AICE (Instituto de Tecnología Cerámica), Italian company Spike Renewables, Greek company Innora, Norwegian company Flowphys and UK company Technovative Solutions.

The project kick-off meeting was held at TWI in October 2016 over the following 6 months the consortia have been working on delivering the tasks in the work programme. This has included:

- Putting together an external advisory board.
- Preparation, distribution and analysis of an end user requirement questionnaire.
- Recruitment of an end user, JBMI, and site visit.
- Selection of Candidate heat transfer fluid for End User Compatibility
- Setting up of labs for small and large-scale testing.
- Identification of the instrumentation for chemical characterization of the exhaust gasses.
- Preliminary list of 20 molten salts for use as HTF identified.
- Goals identified for initial Life cycle Assessment study



Consortium partners visited JBMI, the end users site in December 2016. During the site visit, some potential areas have been investigated regarding the location of the SMARTREC system.



Thermo-mapping of the kiln and the exhaust was conducted by Econotherm using an IR camera to give a thermal analysis of the proposed Smartrec installation area

Scheduled Deliverables in the next 6 months:

- D1.4 Report on lab system equipment
- D2.1 Preliminary heat pipe design
- D3.1 Model of DMT ready
- D3.3 Report of selection of HFT
- D3.4 Report on the instrumentation and control requirement of DMT
- D7.3 A communication plan

Forthcoming events:

Smartrec 6 month review meeting – ICT-AICE Spain - 29 March 2017

Planned Dissemination Activity:

Heat Exchanger Action Group (HEXAG) - 34TH Meeting - Newcastle University - 20 June 2017