H-REII Heat Recovery in Energy Intensive Industries DEMO

Project supported by
LIFE EU Programme
LIFE10 ENV/IT/000397

# Web seminar "*Waste Heat Recovery In Energy Intensive Industries*"

**Date: Monday 6th October 2014**
**Time: 15.00 summer time Europe (Rome, GMT +02:00)**

## Executive summary

Recover the energy wasted by energy intensive industrial processes is an interesting opportunity to increase energy efficiency and sustainable competitiveness. Organic Rankine Cycle (ORC) technology allows the conversion of the exhaust gas thermal energy into electricity: this solution has been proved in the glass, cement and oil & gas industries. H-REII DEMO develops the first heat recovery system with ORC from Electric Arc Furnaces in the steel industry at Elbe-Stahlwerke Feralpi GmbH (ESF) in Riesa, Germany. Moreover, the project extends at EU level the policy results previously achieved at national level in the framework of the H-REII project, disseminates outcomes and networking in order to remove non-technological barriers to the adoption of this solution.

This webinar represents the final event of the H-REII DEMO showcasing technical and policy actions carried out during the project implementation and presenting its main findings and results.

## Agenda

- Why the H-REII DEMO
- Technical aspects
  - ✓ project overall concept
  - ✓ heat exchanger
  - ✓ ORC
- Policy, regulatory aspects and dissemination

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## Project Overview

Energy intensive industrial processes (iron, steel and cement production, glass making, etc.) emit heat and carbon dioxide ($CO_2$) into the atmosphere. Both technological and non-technological barriers have negatively influenced the introduction of more energy efficient systems that are able to recover effluents for energy production in energy intensive industries (EII). Power generation from effluents, currently considered a waste, could drastically reduce, and in some applications even eliminate, the energy consumption of fume depuration, helping limit $CO_2$ emissions and other undesired environmental impacts.

In light of this, in January 2010 the first European project concerning the mapping of waste heat recovery in energy intensive industries started on a pilot local territory. This project, named "H-REII" and financed as LIFE08 ENV/IT/000422, had the objective of promoting policy and governance actions to support innovative solutions for recovery and energy valorization of process effluents in EII and quantify the potentially saved $CO_2$.

The H-REII DEMO project has been conceived as the continuation and implementation of the H-REII with the following objectives:

- develop the first DEMO of heat recovery in an Electric Arc Furnace (EAC) in the steel sector, using ORC technology completely integrated into a fume extraction plant, in order to lead to a significant reduction in total power consumption and to a performance improvement of the fume depuration plant in energy intensive industrial applications (iron and steel industries, cement, glass, etc.);
- extend at EU level the policy results previously achieved at national level in the framework of the H-REII project, disseminate outcomes and networking.

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