



Turning waste from steel industry into valuable low cost feedstock for energy intensive industry

Press Dossier



PRESS CONTACT

Lola Maldonado

Project Office Contact

lmaldonado@cicenergigune.com

(+34) 945 297 108

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This is a document created to help you to do your job easier. In this document we attached the basic information of the project, with links to the project web, so you can get more information.

Here you can find the press release of the launch of the project: [RESLAG LOOKS INTO HOW TO TRANSFORM AN INDUSTRIAL BY-PRODUCT INTO VALUE](#). If you need more information you can visit the [main objectives](#) and [expected impacts](#) sections.

If you want to know more about the main work we are doing in ReSlag, you can consult the 4 work areas we have created:

- [Slag as feedstock to extract of high added value metals](#),
- [Slag as Thermal Energy Storage system feedstock for heat recovery applications](#),
- [Slag as Thermal Energy Storage system feedstock for Concentrated Solar Power applications](#),
- [Slag as feedstock for refractory ceramics industry](#).

Finally, if you are looking for information about about the ReSlag Consortium, you can also consult [Partners](#) and [Organisational structure](#) sections.

INTRODUCTION

The European steel industry generated about **21.4 million tons of slag in 2012** resulting from steel making. About **24% is not being reused**, representing a **severe environmental problem** in Europe, but also a huge amount of available **material for potential recycling**. RESLAG will face this environmental problem by providing 4 eco-innovative industrial alternative applications to valorise the steel slag.

MAIN OBJECTIVES

The main objective of RESLAG project is **to valorise the steel slag that is currently not being recycled** (right now it is partially landfilled and partially stored in the steel factories) and **reuse it as a raw material for 4 innovative applications** that contribute to a circular economy in the steel sector with an additional cross-sectorial approach. These applications will be demonstrated at pilot level and led by end-user industries. Altogether open enormously the range of possibilities of taking profit from slag not only for the steel sector but also for many other sectors.

Specific targets for different priority areas are also envisaged, such as:

- Environmental in electric steelmaking ([see more](#))
- Operative ([see more](#))
- Social, Sectorial and Policy ([see more](#))

EXPECTED IMPACTS

- Reduction of waste generation and savings of primary raw materials by developing innovative applications of slags.
- Reduction in emissions and primary energy use.
- Increase of steel industry competitiveness with the increase of efficiency and the creation of new markets for slags.
- Increase competitiveness of European industry boosting the economic growth and creating high quality jobs in several sectors related to renewable energy, energy efficiency, metal recovery and refractory production.
- Contribution to the implementation of the EU Environmental Technology Verification (ETV) Pilot programme in the area of “Materials, Waste & resources.
- Support to the implementation of the roadmap of the SPIRE PPP.
- Boost the renewable energy sector of Europe through the faster evolution of CSP power installed in Europe. This will lead to a reduction on the final electricity cost.
- The rapid deployment of this type of installations will help to reduce the energy dependence of the EU.

VALORISATION-STRATEGIES

Slag as feedstock to extract of high added value metals

Raw materials are crucial to Europe's economy and essential to maintaining and improving our quality of life. Securing reliable and unhindered access to certain raw materials is a growing concern within the EU.

The objective is to extract between 0.1 and 3 % of metals such as, Cu, Cr, Ni, Zn and other trace of critical metals. This pilot will target a new methodology based on selective hydrometallurgy for non ferrous high added value metal extraction from steel slags. ([see more](#))

Slag as Thermal Energy Storage system feedstock for heat recovery applications

The primary energy requirements of heavy industries are intensive. Even if companies are putting a big effort to reduce the needed input energy and optimize the overall energetic efficiency, between 30-50% of this energy is lost during the manufacturing process.

The project aims to design and construct a high temperature and high thermal performance heat recovery system oriented to the EAF off-gas with a double objective: recover up to a 15% of the primary energy, contained in the EAF off-gas stream and use of steel slag as a successful solution to store the recovered heat from the EAF. ([see more](#))

Slag as Thermal Energy Storage system feedstock for Concentrated Solar Power applications

RESLAG project aims to remove the constrains that current storage technologies for Concentrated Solar Power application have. Two different Thermal Energy Storage concepts will be validated to define new storage systems based in new materials and fluids that will facilitate the integration of the renewable energies in the electric grid. ([see more](#))

- a) Thermal Energy Storage system using air as heat transfer fluid. The objective of the pilot is to demonstrate the viability of air and steel slag to obtain an effective storage at higher temperature (830°C) for solar central receiver systems.
- b) Thermal Energy Storage system using molten salt as heat transfer fluid. The key point of this technology is the replacement of the molten salt for low-cost steel slag, obtaining more cost-effective and efficient systems.

Slag as feedstock for refractory ceramics industry

The aim of this pilot is to develop a processing route that can convert the slag into feedstock for refractory ceramics. The approach is to maximise the amount of by-products in raw material mixtures for castable insulating refractories. ([see more](#))



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ABOUT US

Partners

CIC-energigune: project coordinator and expert in tes for heat recovery

Arcelormittal: worldwide steel producer

German Aerospace Center: expert in tes for CSP applications

IK4 azterlan: expert in metallurgical research

ETH Zurich: expert in thermal and chemical engineering sciences

Imperial College: expert in advanced material characterisation

Friedrich Alexander University-Erlangen Nuremberg: expert in advanced material characterisation

Commissariat à l'énergie atomique et aux énergies alternatives: expert in hydrometallurgy and materials valorization

Optimum Cement: conversion of by-products into secondary materials

Agenzia nazionale per le nuove tecnologie: expert in tes for CSP applications

Technical research centre of finland: expert in powder technology

General electric france: expert in technical integration and engineering design

Improequipe ingeniería: company specialized in thermal equipment design

General electric – Switzerland: thermo-economic CSP plant performance modelling and optimization

Fraunhofer: experts in resource strategy, criticality analysis and LCA

Life cycle engineering: expert in LCA and LCC analysis

Moroccan-agency-for-solar-energy: company specialized in solar energy

Hasten ventures: firm expert in exploitation and dissemination activities