

## Properties

**Title:**

H2020-SC5-2018-2019-2020: Industrial partners with expertise in recycling and recovery of secondary raw materials from end-of-life products

-Technology profile

-REQUEST from Spain, reference: RDES20180109001, valid from 09-01-2018 until 31-01-2018

**Created:**

12 januari 2018

**Updated:**

16 januari 2018

## General information

**Reference:**

RDES20180109001

**Profile type**

Research & Development request

**Country of origin:**

Spain

**Deleted**

Nee

**Status:**

Update

**Start date:**

9 januari 2018

**End date:**

31 januari 2018

## Technologic information profile

**Description:**

The scarcity of practically all the critical raw materials (CRMs) in Europe represents a major challenge to the green growth, sustainability and clean energy objectives of EU industry. However, many of the most economically important metals are present in end-of-life products of which there are vast amounts in waste repositories and landfills scattered all over Europe awaiting to be efficiently recycled and subsequently reintroduced back in the supply chain. In particular, the present proposal addresses more efficient and practical recycling and recovery techniques of the CRMs of interest in the nuclear industry, with an eye in their eventual gradual partial substitution. These materials present specific complications concerning their disposal as waste, due to their proneness to

activation, given the very demanding and extreme environments they face during their work life. Such complications have typically excluded them from novel industrial recycling efforts, leaving aside from the value chain relevant metal resources, which in a raw materials scarcity scenario Europe cannot indeed ignore anymore. A Spanish University is preparing, alongside with other EU partners, a proposal related to the H2020 call/topic CE-SC5-07-2018: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes, and specifically to subtopic b) Recycling of raw materials from end-of-life products.

One of the strengths of the proposal lies in the nuclear fusion related background of several from the applicants. If fusion energy production is ever to reach the market consumers, and the proposers believe it will in the midterm future, the amounts of nuclear industry materials needed to build and maintain fusion reactors worldwide will exponentially grow during the second half of this century. It is clear that refractory metals as tungsten, niobium, tantalum, vanadium, but also molybdenum and chromium that are at the verge of becoming CRMs, will play a leading role, but also a light metal as lithium will be extremely demanded as the only present practicable precursor of the very scarce tritium, an essential participant of the Deuterium-Tritium typical fusion reaction. Moreover, graphite, another CRM, is likely to play a major role due to its refractory applications in high temperature environments.

The recovery of highly valuable metals has been traditionally hindered by the predicted absence of financial benefits as compared to relatively cheap and mature traditional mining procedures. Nowadays, environmentally conscious societies increasingly demand a higher respect for the planetary resources and a parallel decrease of the insatiable consumption habits that have been ubiquitously followed in developed and developing countries. In that regard, reusing the technologically relevant materials present in waste repositories and landfills instead of allowing them to pile up and rot away appears as a mandatory attitude more than a just a sensible future option as it has been to date. However, it should be borne in mind that sustainable solutions imperatively require beneficial business models.

The project aims at creating a pilot spin-off or SME capable of producing metals of interest to the fusion energy community from secondary raw materials as present in industrial waste repositories and landfills, all in a green, efficient and sustainable fashion. Additionally, the progressive substitution of all or a significant fraction of these critical raw materials is one of the declared main objectives of the research plan presented in this proposal as well.

Framework programme conditions: Coordination and support action, single-stage.

Call deadline: 27/02/2018

EOIs deadline: 31/01/2018

Project duration: 4 years

Industrial partners and enterprises interested and experienced in the development of new technologies for the recycling and recovery of secondary raw materials from end-of-life products are sought.

#### **Technologie keywords**

- Energy Storage and transport
- Nuclear Fission / Nuclear Fusion
- Mathematics, Statistics
- Environment
- Waste Management

#### **Activity codes**

- Other research and experimental development on natural sciences and engineering
- Tertiary education

#### **Languages**

- English
- Spanish

### More information

**Plus Value:**

**IPR Status:**

**EOI Status:**

True

**Experience:**

## Organisation

**Type of organisation:**

**Since:**

0

**Type and Size:**

University

**Transnational**

Nee

**Turnover:**

## Collaboration

**Technical Specification or Expertise Sought:**

pThe expected Technology Readiness Level to be achieved by the end of the project is TRL 7 (system prototype demonstration in operational environment.)ppThe identified profile sought for new partners is medium-sized companies or SMEs headquartered in north or eastern European countries with expertise in the recycling of batteries and energy storage devices and components, landfill mining and/or radioactive waste.ppSME 11-50,SME 10,500 MNE,251-500,SME 51-250,500p

**Partnerships**

\_Research cooperation agreement

## Program

**Acronym:**

**Coordinator**

Nee

**Deadline:**

27 februari 2018

**Duration:**

0

**Evaluation:**

Single-stage

**Funding:**

**Prebudget:**

EUR 10 million

**Url:**

**Website:**

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-sc5-07-2018-2019-2020.html>

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Ministerie van Economische Zaken



Ministerie van Buitenlandse Zaken

