

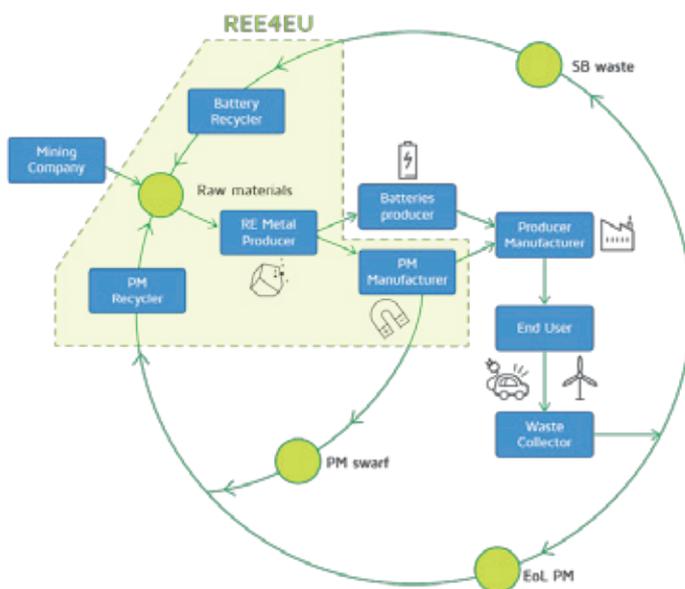


## REE4EU: Integrated High Temperature Electrolysis (HTE) and Ion Liquid Extraction (ILE) for a Strong and Independent European Rare Earth Elements Supply Chain



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## THE STAKEHOLDER ANALYSIS IN THE FRAMEWORK OF REE4EU AVAILABLE SOON!



Nowadays, REEs are considered “key-enablers” of green technologies, as they are crucial in hybrid electric vehicles, wind mills and highly efficient electric motors. Additionally, they are necessary for many widely used hi-tech products such as computer memory, DVDs, rechargeable batteries, cell phones, fluorescent lighting to name a few. The dependence on Chinese exports makes Europe, and western countries in general, extremely dependent to Chinese market control and REE are considered to be materials with the highest supply-risk. A recent study estimates the global trade in RE-containing products in 2010 at around €1.5

trillion, equivalent to 13% of the global trade but only 1% of RE waste is being recovered as no adequate process is currently available. To mitigate the supply risk, recently there have been a number of publically and privately funded initiatives in Europe investigating the recovery of REE.

In order to have an overview on the European innovation landscape in this domain as well as the most relevant industrial actors who are active in the recovery of REE, value chains stakeholders analysis has been performed by PNO, in the framework of the REE4EU project.

The aim of this report is, on the one hand, to help the REE4EU partners in setting up targeted dissemination and communications actions towards the relevant group of stakeholders from a specific value chain, and on the other hand, to provide information to the public at large on the relevant industrial and academic stakeholders that are connected to the topic of the recovery of REE. Furthermore a selected group of identified stakeholders are being interviewed to elaborate a market analysis on the most relevant EoL products containing REE. The market study and the reports will be available to the public by October 2017.

## Methodology and Results of the stakeholder analysis

The results of the stakeholder analysis have been acquired, based on a methodology elaborated by PNO based on the following approach: a) Screening of the CORDIS database to identify the Innovators in Europe around the topic of recovery of REE; b) Screening of several patent databases such as WIPO or Espacenet to identify the Potential Investors in the topic of REE recovery; c) Desktop research, through associations and main reports to identify relevant stakeholders as Potential Business Drivers for the concept and technologies used in the REE4EU project. All the gathered information are collected in the Value Chains Stakeholders Analysis Report, where the geographical characterization and the position of each industrial stakeholder in the value chains related to the recovery of REE are identified, websites and concise information about their activities, potential interests, and how they can be connected to the REE4EU project is also provided. Moreover, the analysis identifies and describes the stakeholders, representative of potential end users of the REE produced, connected to the 9 products/applications presented in the report of the "European Rare Earths Competency Network" (ERECON): hard disk drives,

DVD and CD players, automotive applications, motors in industrial applications (e.g. servo motors from robotics), loudspeakers, air conditioning compressors, magnetic separators, mixed electronics, electric bicycles and wind turbines.

Although the list of stakeholders provided in the document is by no means exhaustive, the study provides relevant information on more than 300 important stakeholders identified. Additionally, a market analysis is being developed by PNO and key partners of the REE4EU project, by exploiting the results of the stakeholders' analysis.

In particular, the market analyses will be carried out to develop a three-fold business plan strategy:

1. for the economic recovery and re-use of in-process permanent magnets
2. related to the economic feasibility of collection, dismantling and recovery of EoL REE containing products
3. for the investment in a new European RE-Alloy production plant, using multiple feedstock.

## REE4EU PRESENTED IN MANY KEY NATIONAL AND INTERNATIONAL EVENTS

In parallel CiaoTech, as third party of PNO, is implementing also a communication and dissemination plan to underpin adequate involvement of all relevant stakeholders, while the project dissemination is implemented very actively by the whole project consortium. On the website is available an intriguing video filmed during the first six months progress meeting by the hosting partner STENA, showing the advances in the project with the participation of the whole consortium.



Beyond the website, REE4EU participated in many international and national events, fairs, congresses and workshops by displaying informative posters and by giving accurate oral sessions about the state of the project.

In 2016, it took part, among others initiatives, in the "European Conference Industrial Technologies 2016", held in Amsterdam. It represented the largest networking conference in the field of new production technologies, materials, nanotechnology, biotechnology and digitalisation in Europe, with high level delegates. In this three-days conference, a wide variety of plenary and interactive sessions, inspiring keynote speakers, case studies, eye-opening site visits and numerous opportunities to get in contact with new business partners were organized. The conference brought together research, industry, education, finance and policy from manufacturing and process industry and technology domains from all over Europe to identify priorities that are crucial to strengthen the European industrial innovation ecosystem. In this occasion, the REE4EU project was also granted to display a poster in the framework of the conference, where project aims, results and impacts were illustrated.





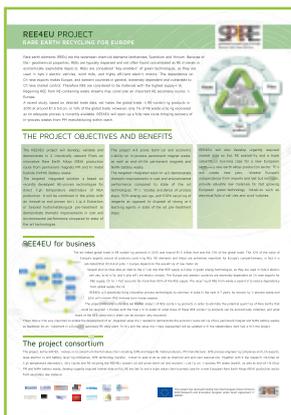
The project coordinator, Ana Maria Martinez (SINTEF) presented a poster in the 6th EU-US-Japan Trilateral Conference on Critical Materials.

The theme of the 2016 Conference was "Strategies for Sustainable Supply of Critical Raw Materials" and it allowed to reconfirm the importance and relevance of a structured dialogue both at policy and at technical level between researchers and relevant organizations (METI, NEDO, DOE and EC) in the field. It was therefore agreed to continue the series of Trilateral Conferences on Critical Materials.

Moreover Ree4eu was presented in the "12th Congress of the Interdivisional Group of Organometallic Chemistry" in Genoa (Italy), which is a biennial event and represents a possibility for researchers working in the organometallic field to spread their results and share new ideas. Over the years, the scientific interest addressed by many researchers, having different backgrounds, to the chemistry of metals and their potential application in many fields, has promoted the development of interdisciplinary fields of research such as bioorganometallic chemistry and materials science, focused on nanotechnologies, as well as new materials and processes whose goal is to produce zero-carbon energy.



In the framework of this event, REE4EU presented a speech underlining its aims of developing an efficient and cost effective method of extraction and a direct production route for Rare Earth Alloys which will be achieved through in-process and End-of-Life permanent magnets as well as Ni metal hydride battery waste.



In addition, REE4EU was presented also in the poster session of the "Waste management & Exploitation" workshops (Waste management in the circular economy: applied researches to recycle, reuse and integrated management) to the "ECOMONDO: The Green Technologies Expo" last October in Italy.

This event represents the technology platform for the Green and Circular Economy in the Euro-Mediterranean area where all the main actors in this field gather together. It is considered the largest showcase in the Euro-Mediterranean area for advanced and sustainable technology for processing and recycling all kinds of waste; treating and reclaiming water, waste water and polluted marine sites; efficient use and transformation of raw and processed materials and the promotion of renewable raw materials..



## REE4EU on IMPACT Magazine!

Ana Maria Martinez (SINTEF) had an interview about the REE4EU project for the IMPACT magazine. She shared how the work done in the framework of REE4EU will improve the availability of rare earth elements in Europe in order to make available rare earth elements and rare earth alloys for magnet production and develop an efficient and cost-effective method of extraction and a direct production route for rare earth alloys.

The article will be published next May and you will find it on REE4EU project website [www.ree4eu.eu](http://www.ree4eu.eu)



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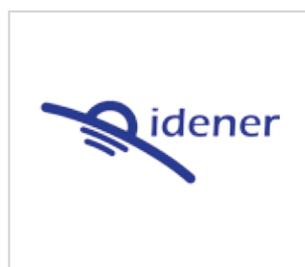
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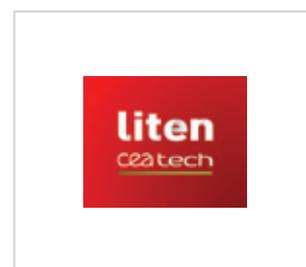
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For more info about project visit the REE4EU website at: [www.ree4eu.eu](http://www.ree4eu.eu)



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