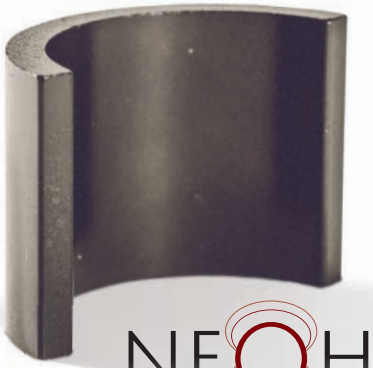

NEOHIRE

Project in a nut shell

NEOHIRE (NEOdymium-Iron-Boron base materials, fabrication techniques and recycling solutions to HIghly REduce the consumption of rare earths in permanent magnets for wind energy application) is a jointly funded European research project co-funded by the European Union's 'H2020-Advanced Materials' Program. NEOHIRE aims to reduce the use of rare earth elements (REE) and other critical raw materials (CRM)(Co, Ga) in the permanent magnets (PM) present in wind turbine generators (WTG) by exploring new concepts of bonded NdFeB magnets, WTG designs and CRM recycling techniques from PM wastes. In this way, NEOHIRE expects to reduce by 50% the EU external demand of REE and CRM for PM in WTG. NEOHIRE is a 3-year project that began in February 2017 with a budget over 4 million Euros.

Project coordinator

ceit | IK4 Research Alliance

Project partners

Universidad del Pais Vasco / Euskal Herriko Unibertsitatea

UNIVERSITY OF BIRMINGHAM

Fraunhofer LBF

Fundación cidaut

KU LEUVEN

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NEOHIRE

Reduce the use of rare earth elements and other critical raw materials (Co, Ga) in the permanent magnets used in wind turbine generators

H2020-NMBP-720838

01/02/2017_31/01/2020

http://neohire.eu

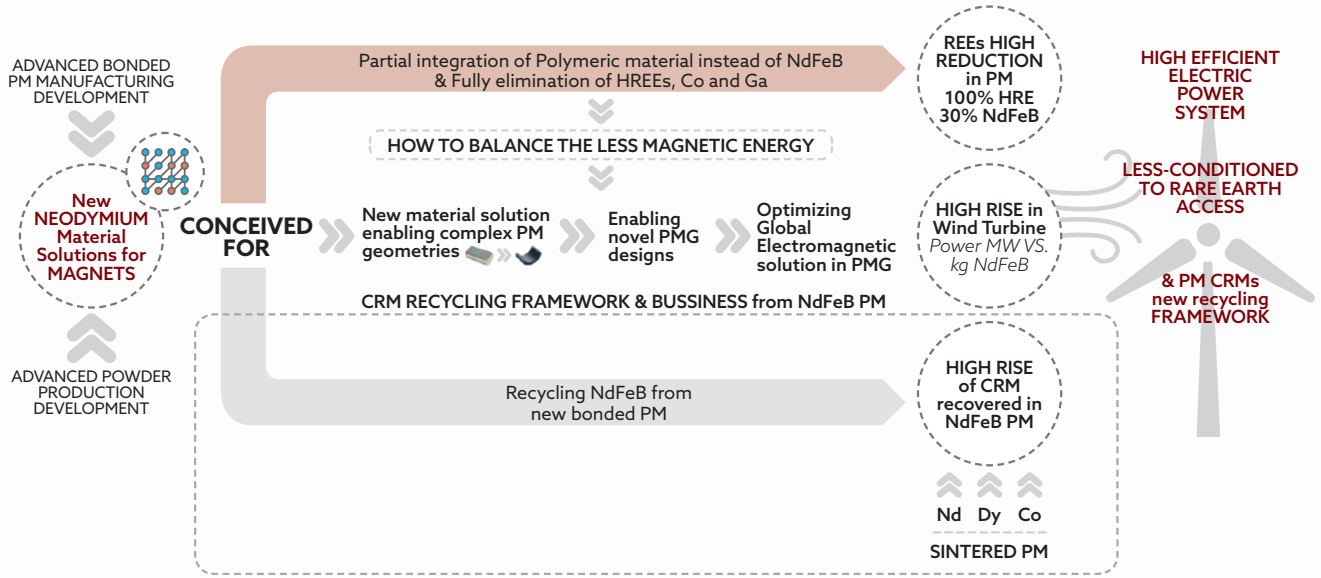
Project context

European forecasts show that by 2020, up to 20% of the EU electricity will be produced by wind energy. Over the last decades, the application of PM technology to large WTG has supposed a breakthrough in the energy generation system and has directly contributed to:

1. an increase in energy efficiency of WT generators (WTG).
2. a rise of energy quality delivered (better grid connection).
3. a reduction of maintenance costs and time.
4. a rise of the generation unit reliability.

In terms of value, two-thirds of the PM wind generator market is dominated by those containing rare earth elements (REEs). Though highly efficient and reliable, REE WTG technology still needs to overcome 3 important barriers:

1. Strong dependency on China for supply and high price of REEs.
2. Highly difficult substitution of REE in PM.
3. Several challenges have to be overcome for commercially viable, large-scale REE recycling.

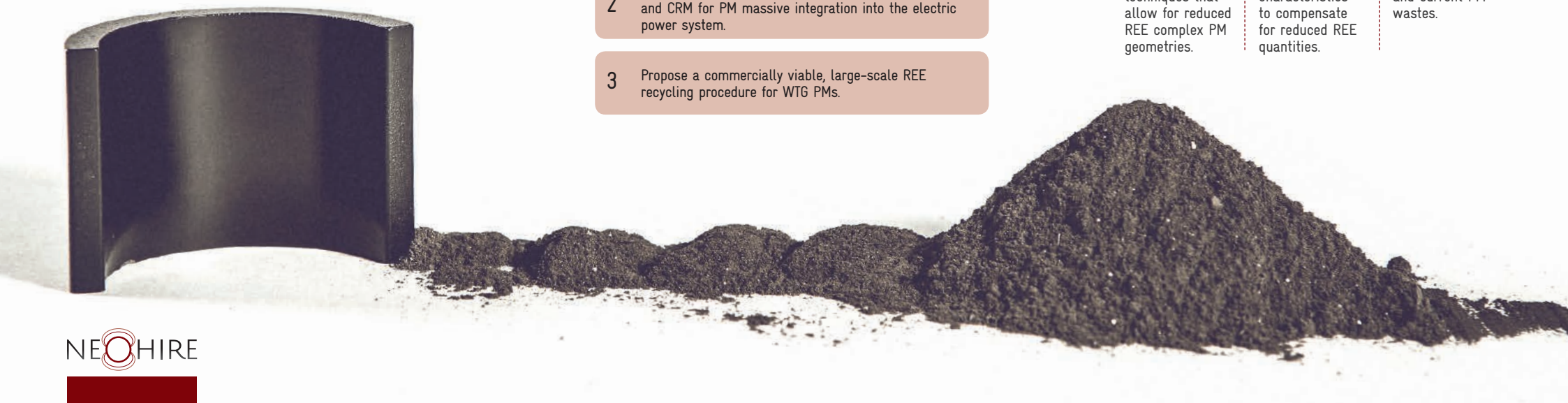


Project objectives

1. Achieve the desired decrease of EU REE and CRM external demand for PM in WTG.
2. Overcome the bottleneck in the supply-chain of REE and CRM for PM massive integration into the electric power system.
3. Propose a commercially viable, large-scale REE recycling procedure for WTG PMs.

Project breakthroughs

1. Develop advanced bonded magnet manufacturing and powder production techniques that allow for reduced REE complex PM geometries.
2. Explore innovative WTG designs that exploit new PM geometries and characteristics to compensate for reduced REE quantities.
3. Refine CRM recycling techniques from future and current PM wastes.



NEOHIRE