EIT RawMaterials supports the world after COVID-19 in securing a sustainable supply of raw materials and advanced materials – for Europe's green future and competitiveness

The current **COVID-19 pandemic** has already by now caused **profound effects** at global **macroeconomic** scale. In the **automotive sector**, for example, car manufacturers have announced a **stop of production** during the last weeks and just now start to gradually ramp up again. **Tier 1** and **Tier 2 suppliers** and other market actors **further upstream** are similarly affected by this demand side shock and have consequently ramped down their production as well. In addition to these **demand side shocks**, supply chain steps located in countries strongly affected by the virus are hampered, too, leading to the **breaking of entire international supply chains**. This makes more clear than ever before that the **security of the supply** of **strategic raw materials** needed for the long-term **competitiveness** and **job security** of key industries is of **prime importance for the European Union**.

The **European Green Deal** targets **2050 climate neutrality** and recognizes **access to resources as a strategic security question** to fulfil its ambition. The new **Industrial Strategy for Europe** sees raw materials as **key enablers** for a globally competitive, green and digital Europe. It envisions European competitiveness based on a new **Alliance on Raw Materials** and highlights the **importance of industrial ecosystems** for accelerating innovation and growth in Europe. A more resilient, more protective, more sovereign and more inclusive economic model that aligns with the Green Deal has also been prioritized by the recently launched **Green Recovery Alliance**.

EIT RawMaterials, funded by the European Institute of Innovation and Technology (EIT), has the vision to **develop raw materials into a major strength for Europe**. It is the **world's largest network** in the **raw materials** sector connecting industry, research and education. This makes EIT RawMaterials a key contributor to secure sustainable access and supply of raw materials – for a **green, digital and competitive Europe** after COVID-19.

Case Study: The vulnerability of European industries to the supply of Rare Earth Elements

Among their various industrial uses, **rare earth elements (REEs)** are essential for manufacturing **permanent magnets**. Permanent magnets are critical components in **most decarbonisation technologies** underpinning the Green Deal such as **electric vehicles**, **vehicles based on fuel cells** and **wind turbines**. Recent studies have demonstrated that reaching the goals of the '2-degree scenario' and the Green Deal is **highly vulnerable** to disruptions in the REEs supply chain (Ballinger et al., 2020, https://doi.org/10.1016/j.spc.2020.02.005).

Reliable and sustainable sources of REEs do exist within Europe and elsewhere, yet the supply chain of REEs for permanent magnets as well as the magnet production itself is almost exclusively **controlled by China** (see Figure 1). Under current market conditions, it could take **up to 15 years** to establish a supply chain elsewhere.

Considering a **continued growing demand** after the COVID-19 crisis for REEs and other critical raw materials, Europe will also continue to compete with China on the sourcing of REEs – already today, China is **increasingly importing** Rare Earth Element Oxides (REO, see Figure 2), which are the necessary input to produce the metal and finally the permanent magnet.

EIT RawMaterials is using its **extensive partner network** consisting of major European industries in sectors of high relevance for a green, digital and competitive Europe to evaluate **strategic opportunities** ranging from **risk sharing activities** along the supply chain to **collaborative R&D** and **large investments** as well as the **relocation of crucial supply chain steps**, which can be considered as bottlenecks, into Europe.

Figure 1: China's dominance of the supply chain for gearless wind turbines (Source: JRC 2017)

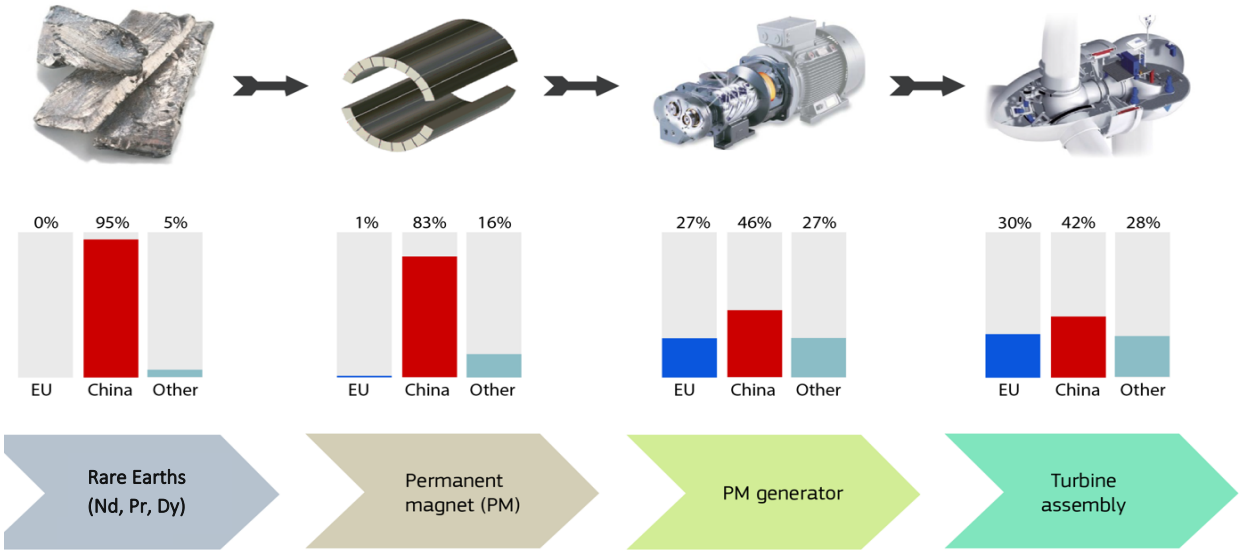
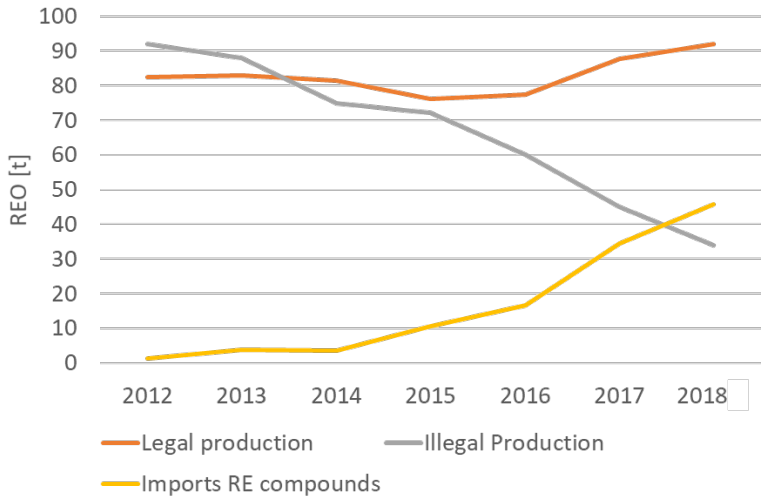


Figure 2: REO production in China (Source: R. Gauß based on Roskill 2019)



European strategies to exit the COVID-19 crisis

To exit the COVID-19 crisis into an **economically sound scenario**, Europe not only has to tackle the supply side challenges as shown for the example of REEs, but also **demand** for sustainable end and intermediate products. National governments and the European Commission are taking **serious measures** to fuel the European economy again and restart the power engine of our welfare.

Europe is home to **world-market leaders** in the metals and minerals sector and **leaders of excellence** in innovation and education. **EIT RawMaterials** was established to address this type of challenges and has the credentials, drive and expertise to **lead the establishment of new, post-COVID-19 supply chains**. Solutions include, for example, **R&D** to make available both **primary** and **secondary sources**, **circularity** through **industrial symbiosis** and **closing material loops** as well as **access to financing** for **critical value chain steps**.

RAW MATERIALS ARE VITAL FOR THE EU ECONOMY, THE GREEN TRANSITION AND A SUCCESSFUL EXIT FROM COVID-19 – EIT RAW MATERIALS WILL FULLY SUPPORT THIS

For additional information about EIT RawMaterials and our position on COVID-19 please contact:

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