# Metals & transition to carbon neutral society

## Challenges & opportunities

FRDO – 12.10.2020

Embracing technology
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# Challenges & opportunities – EU Green deal

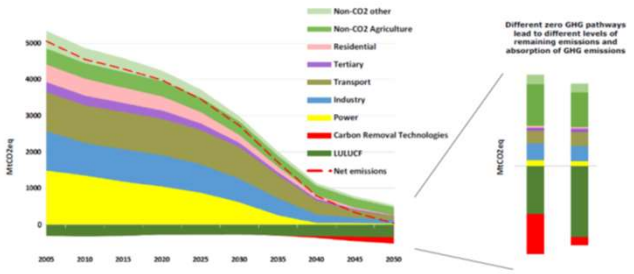


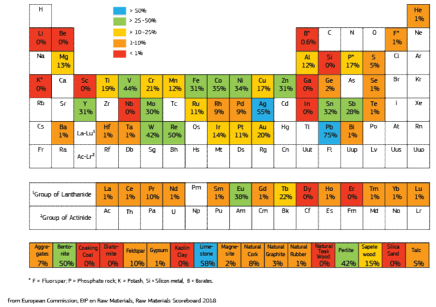

*Figure 6. GHG emissions trajectory in a 1.5°C scenario*[3]



Carbon neutral society

Circular economy

Non-toxic environment



From European Commission, EIP on Raw Materials, Raw Materials Scoreboard 2018

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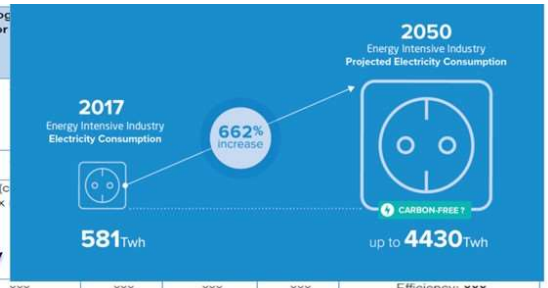
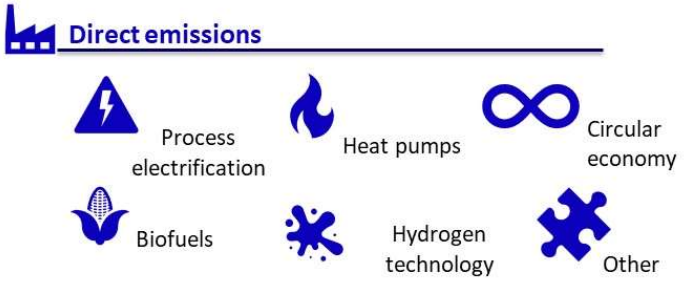
# Carbon neutrality: multiple technologies & strategies

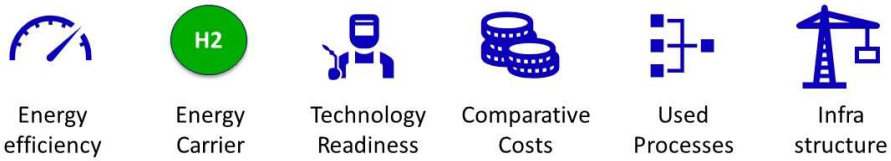
| | Electrification (heat and mechanical) | Electrification (processes: electrolysis/ Electrochemistry excl. H2) | Hydrog and/or | | | | |
|---|---|---|---|---|---|---|---|
| Steel | xxx | xx | | | | | |
| Chemicals fertilizers | xxx | xxx | | | | | |
| Cement Lime | xx (cement) x (lime) | o (cement) o (lime) | x (c x | | | | |
| Refining | xx | o | xxx | xxx | xxx | xxx | Efficiency: xxx |
| Ceramics | xxx | o | xx | x | x | o | Efficiency: xxx |
| Paper | xx | o | o | o | xxx | o | Efficiency: xxx |
| Glass | xxx | o | x | o | xxx | o | Higher glass recycling: xx |
| Non-ferrous metals/alloys | xxx | xxx | x | x | xxx | x | Efficiency: xxx Recycling high quality non-ferrous: xxx Inert anodes: xxx |

o: Limited or no significant application foreseen
x: Possible application but not main route or wide scale application
xx: medium potential
xxx: high potential
xxx: Sector already applies technology on large scale (can be expanded in some cases)
(*) in particular for ammonia and ethylene oxide

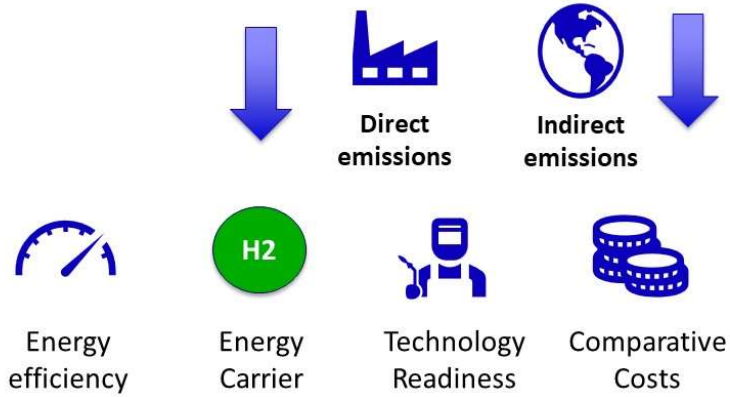



**Renewable electricity is important in shift to carbon neutrality metals production & society**

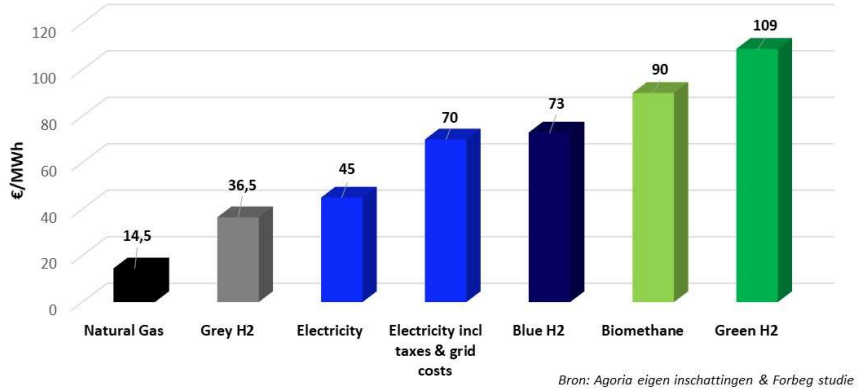



# Climate neutrality: a complex approach




**Price is always an issue certainly in electro intensive industries which are price takers & exposed to outside competition**

**Balanced climate policy is important to protect against carbon leakage**




*Bron: Agoria eigen inschattingen & Forbeg studie*

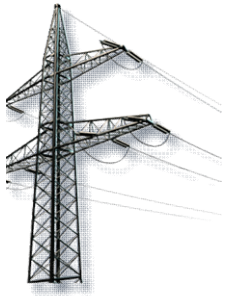
# Metals play a crucial role in carbon neutrality

Solar

Al, Cu, Zn, Ag, In, Ga, Cd, Te, Ge, Si

Wind

Cu, Zn, Ni, Mo, Dy, Nd, B



Smart network

Al, Cu, Zn, Pb, Si, Ni, Lin Co, Mn, Co

Green mobility

Al, Cu, Pb, Zn, Ni, Li, Co, Mn, Dy, Tb, Nd, Pt

By 2030, Europe's low-carbon transition will require:

| Ni (Nickel) | Cu (Copper) | Sn (Tin) | Pb (Lead) |
|---|---|---|---|
| **101,310 tonnes** | **246,474 tonnes** | **13,030 tonnes** | **63,686 tonnes** |
| 34% of today's total EU demand (batteries, wind, CCS) | 6% of today's total EU demand (solar, grids, mobility) | 22% of today's total EU demand (solar) | 3% of today's total EU demand (batteries) |

| Pt (Platinum) | Au (Gold) | Ag (Silver) | Co (Cobalt) |
|---|---|---|---|
| **29 tonnes** | **190 tonnes** | **732 tonnes** | **9,427 tonnes** |
| 45% of today's total EU demand (fuel cells) | 30% of today's total EU demand (lighting) | 6% of today's total EU demand (solar, lighting) | 15% of today's total EU demand (batteries) |

$CO_2$ | Metals with Ambition

Source: Joint Research Centre (2013)

**How to grasp opportunities for the Belgian ecosystem?**

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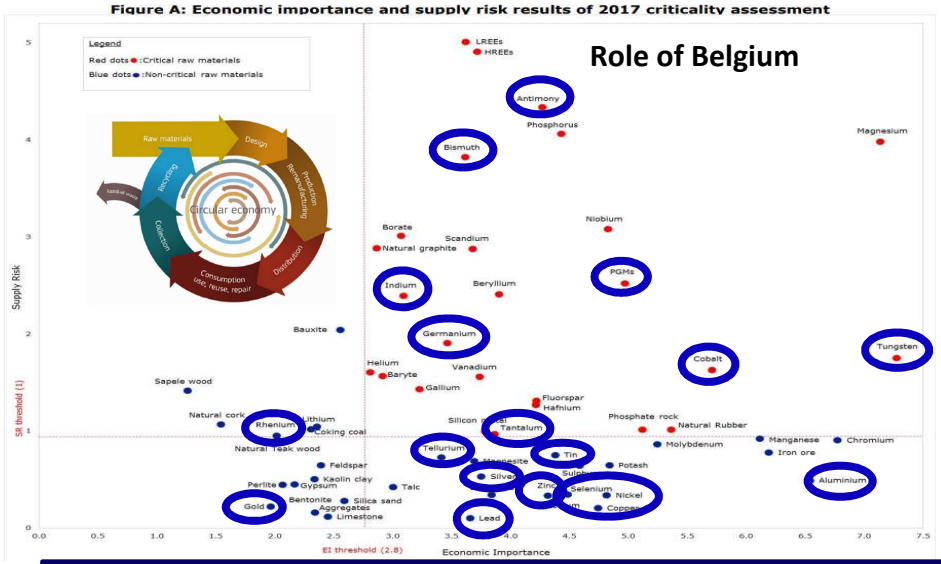
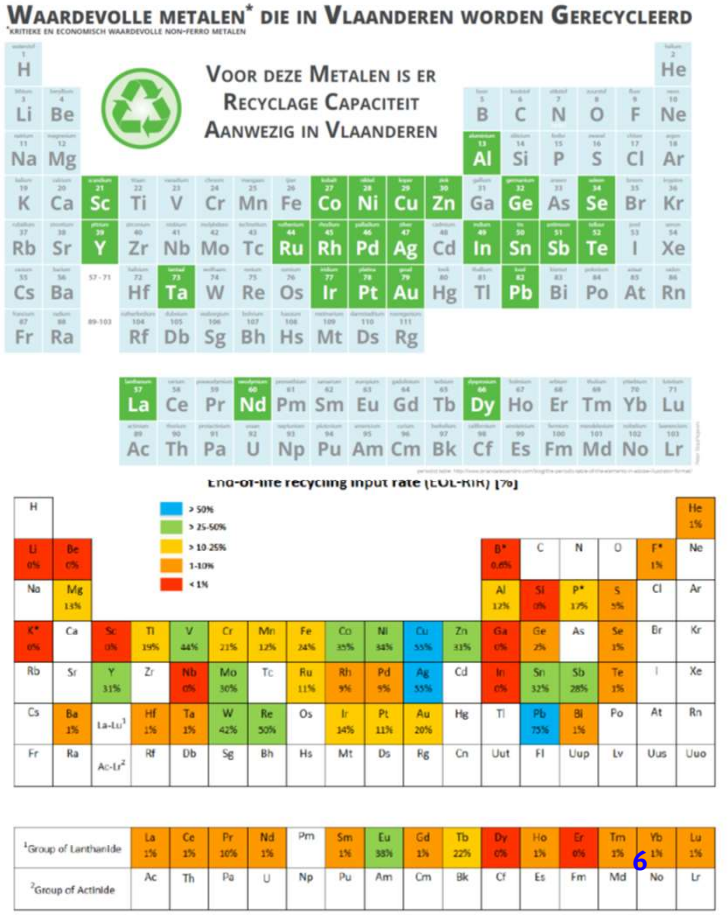
# Raw materials strategy:

## Belgium plays a key role in recycling




**Important to facilitate high quality recycling in Belgium through adequate policy framework**



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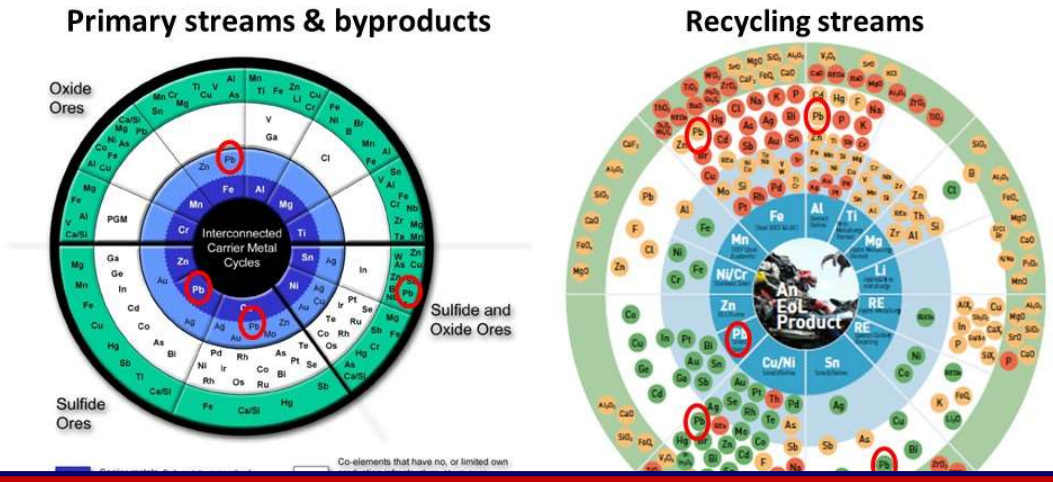
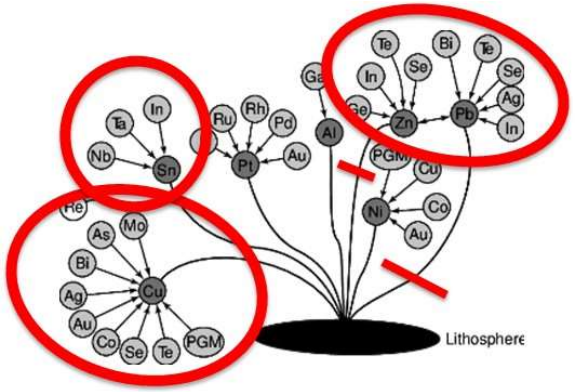
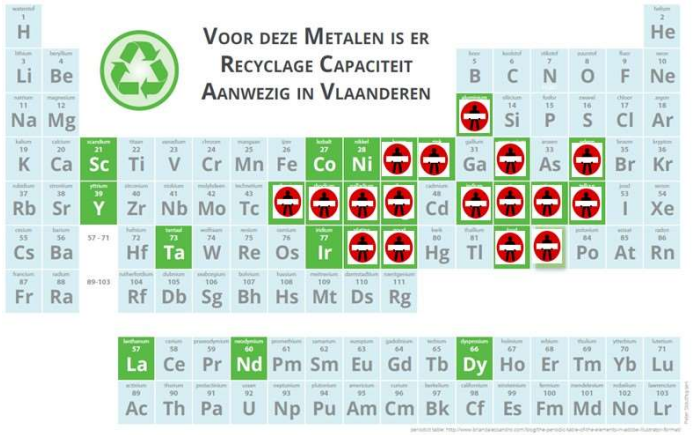
# Non-toxic environment & REACH

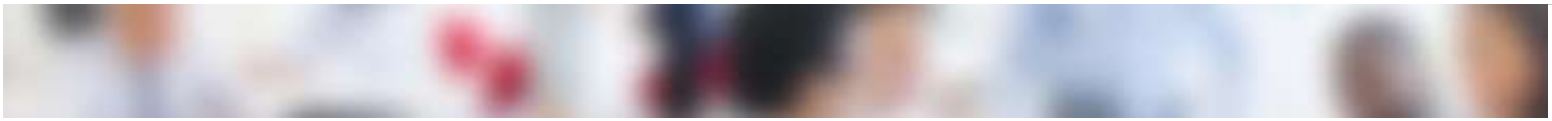
**Interconnectivity of metals: substitution can lead to loss in recycling capacity!**




**Pragmatic approach for the interface between REACH & circular economy !!**



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# Challenges & opportunities

- **Metals are crucial for the transition to a carbon neutral society:**
  - Need for good ambitious, supportive industrial policy framework (also at Belgian level) to create opportunities within ecosystem
  - Examples: stimulate high quality recycling, ambitious climate policy preventing carbon leakage (competitive position), investments in needed infrastructure, …
- **Harmonization of different policy frameworks (energy, REACH & circular economy):**
  - Coherence, harmonization but also better enforcement
- **Stimulate further innovation & investments:**
  - A lot of innovative projects @companies but take also the 'opportunity' of relance plans post Covid

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Embracing ambition

# Thank you

For your attention

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