



Metals for a sustainable future

ETIPWind workshop: Delivering circularity through innovative materials and recycling technology

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Integrated company with both mines and smelters

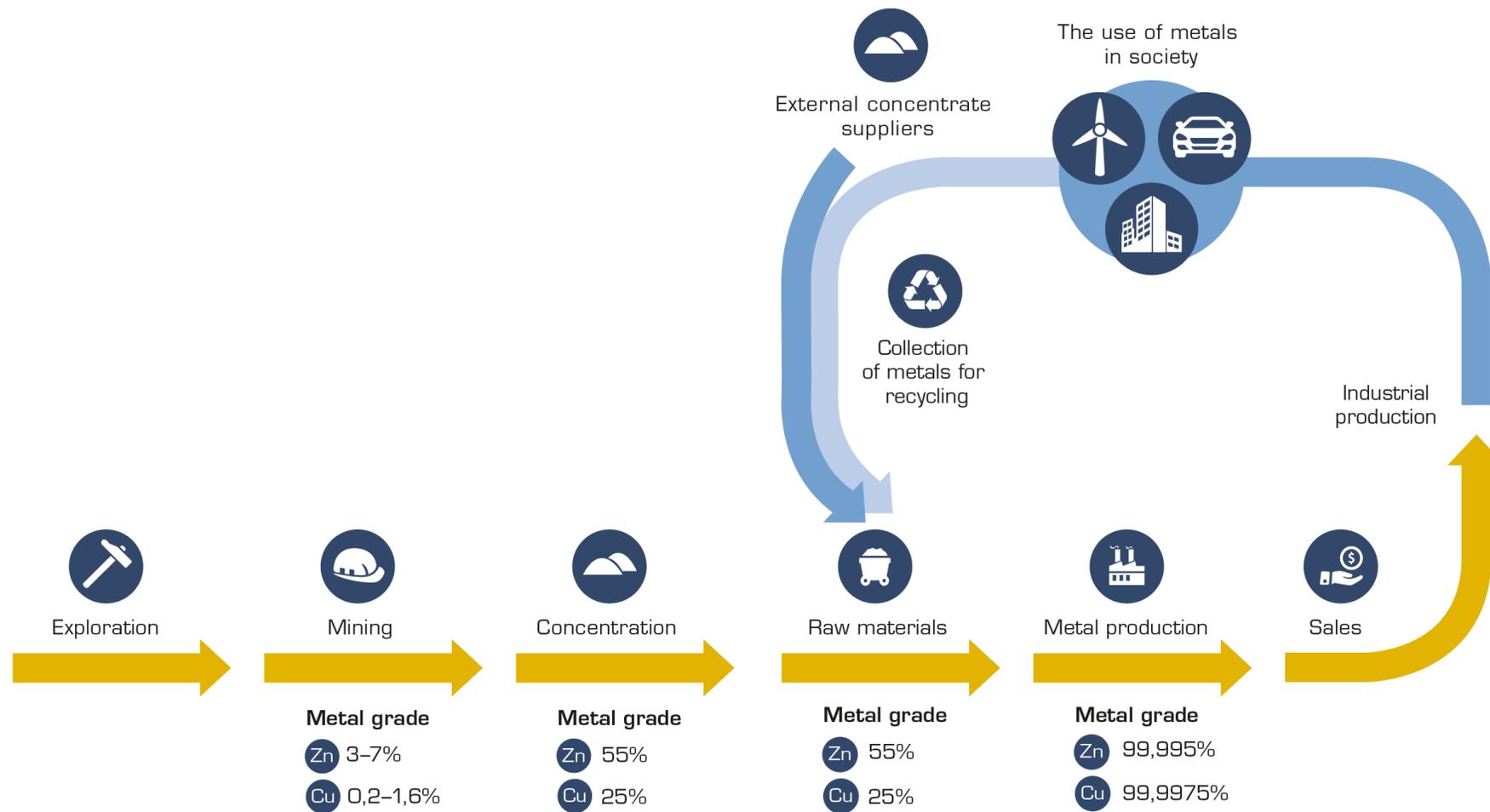
MINES

SMELTERS

HEADQUARTERS



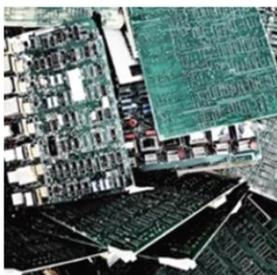
Our business model – part of a circular economy



Pioneers in recycling



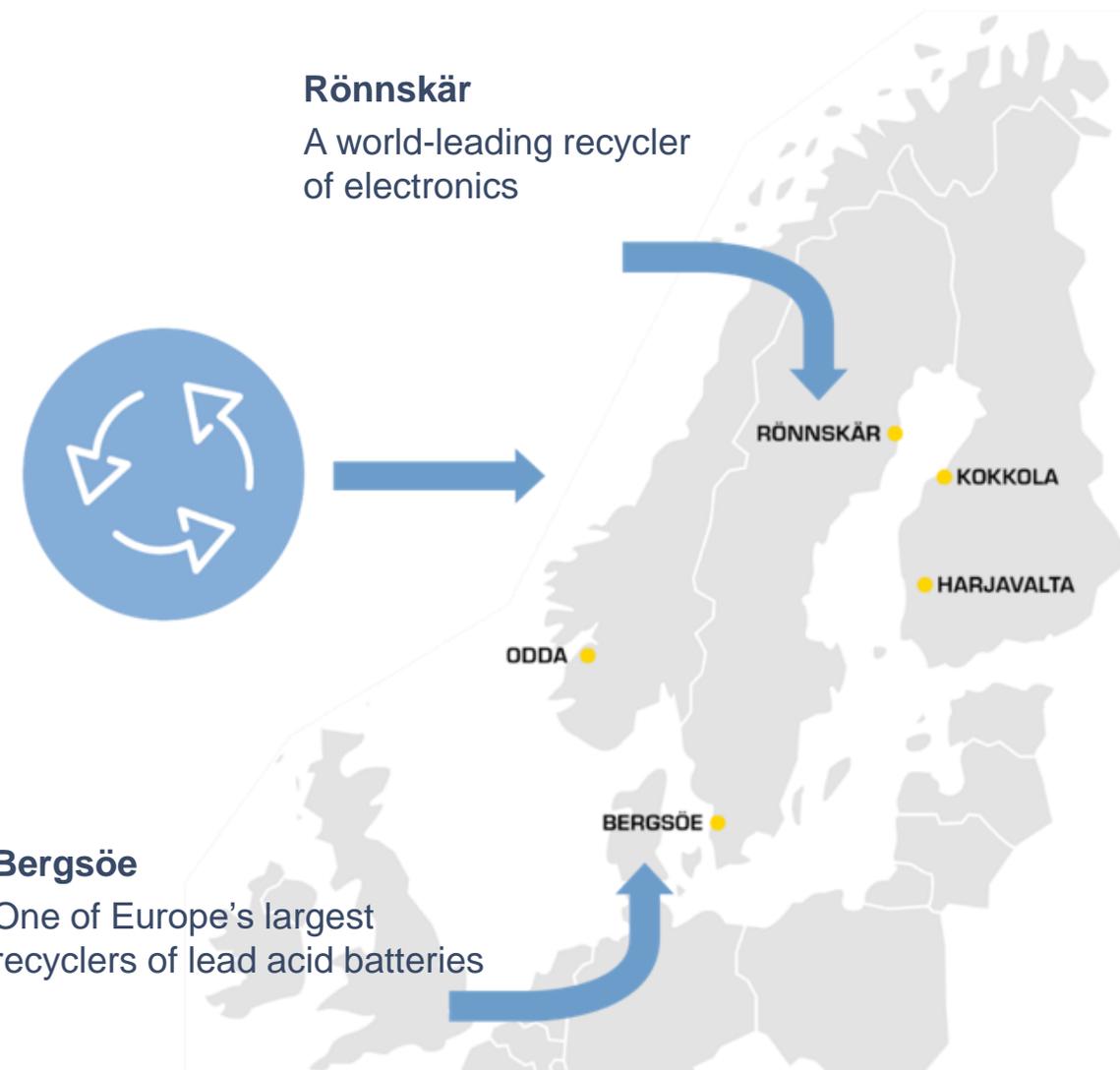
Four million car batteries per year



Electrical waste equivalent to two million mobile phones per day



Steel works dust
Zinc ash
Incinerated waste



The world will need the same amount of copper over the next 25 years that it has produced over the past 500 years

50% of the copper used in
the EU comes from recycling

Recycling of copper in the EU is increasingly important

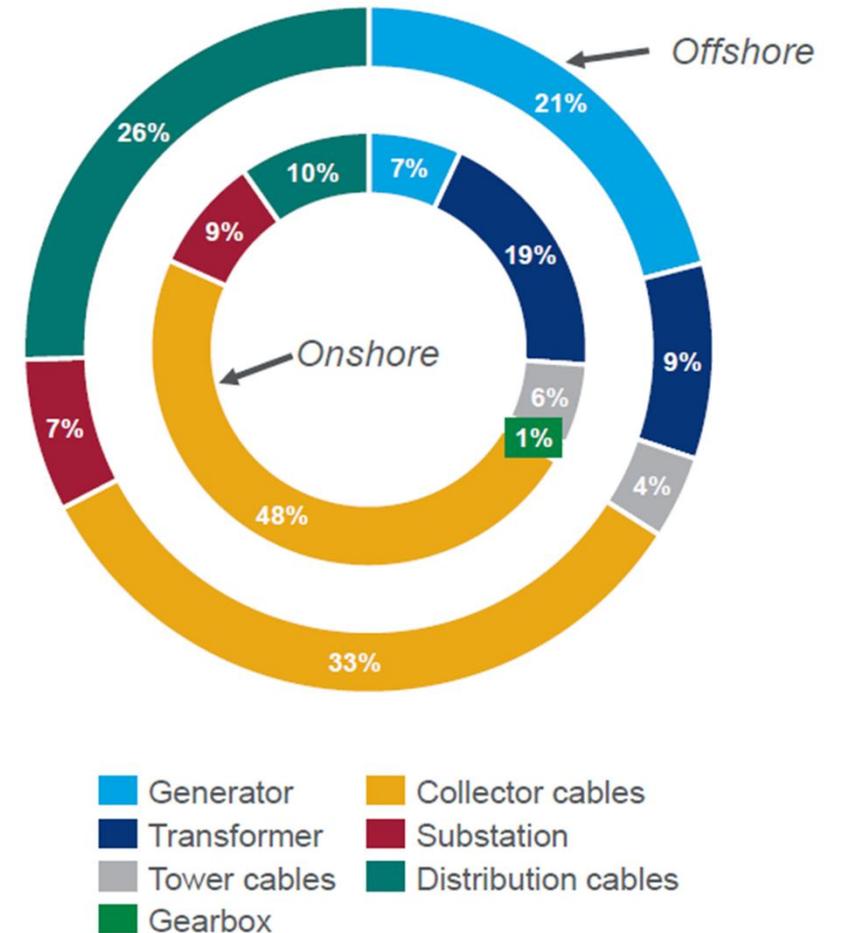
- Copper can be fully recycled and reused again and again, without any loss of performance
- Copper requirements are increasingly being met by metals recycling.
- Lessening the environmental impact of its production and ensuring sustainability and availability



Copper content in wind technology

- The copper content per installed wind turbine is 2.5–6.4 tonnes per megawatt:
 - Generator: 0.7–3.0 tonnes of copper
 - Cabling: 0.7–1.0 tonnes of copper
 - Transformers: 0.7–1.4 tonnes of copper
- Approximately 58% of copper consumed within wind installations is through cabling.

Copper consumption by component comparison between onshore and offshore



Recycling of copper in wind technology

- Over 95% of copper in onshore plants can be recycled
- Well-established practices to recycle rotating machines, power transformers and power cables

Challenges with off shore wind power

- Challenges with the submarine cable. But the technology and tools are in place.
- Whether it is environmentally justified or even required depends on regulation. Considerations are the disturbance of the seabed during recovery, but also a lead issue since some cables use lead screens).



Committing to Green Metals with Boliden Low-Carbon Copper

- Copper with a low carbon footprint, verified by third party
- Produced from own Boliden copper concentrates and recycled copper
- All significant emission categories from cradle-to-gate included (Scope 1, 2 & 3)



Boliden Low-Carbon Copper

<1.5kg CO₂/kg Cu

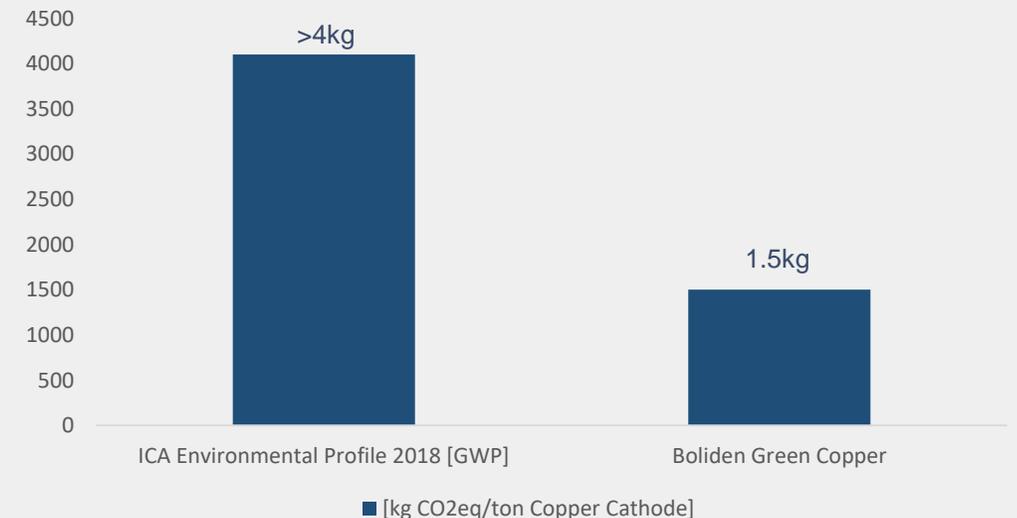
Produced from copper concentrate mined in our own mines



Boliden Recycled Copper

<1.5kg CO₂/kg Cu

100% recycled copper produced from, for example, electronics



Sustainable mining and recycling is necessary for a sustainable future

