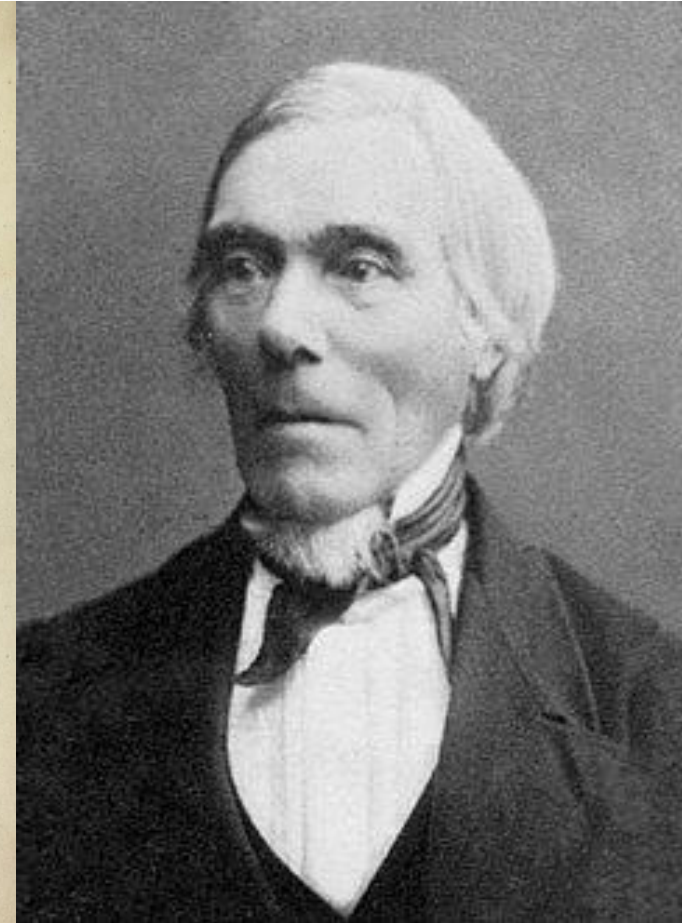
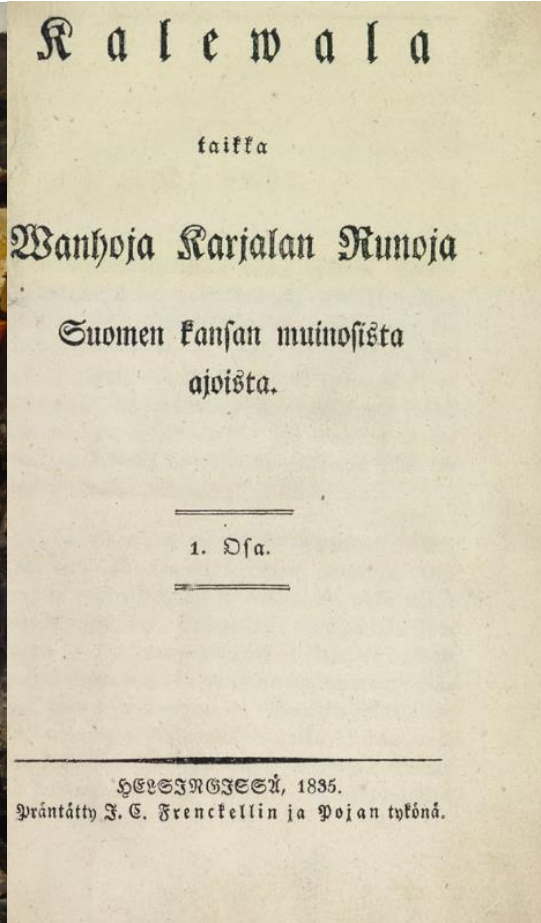


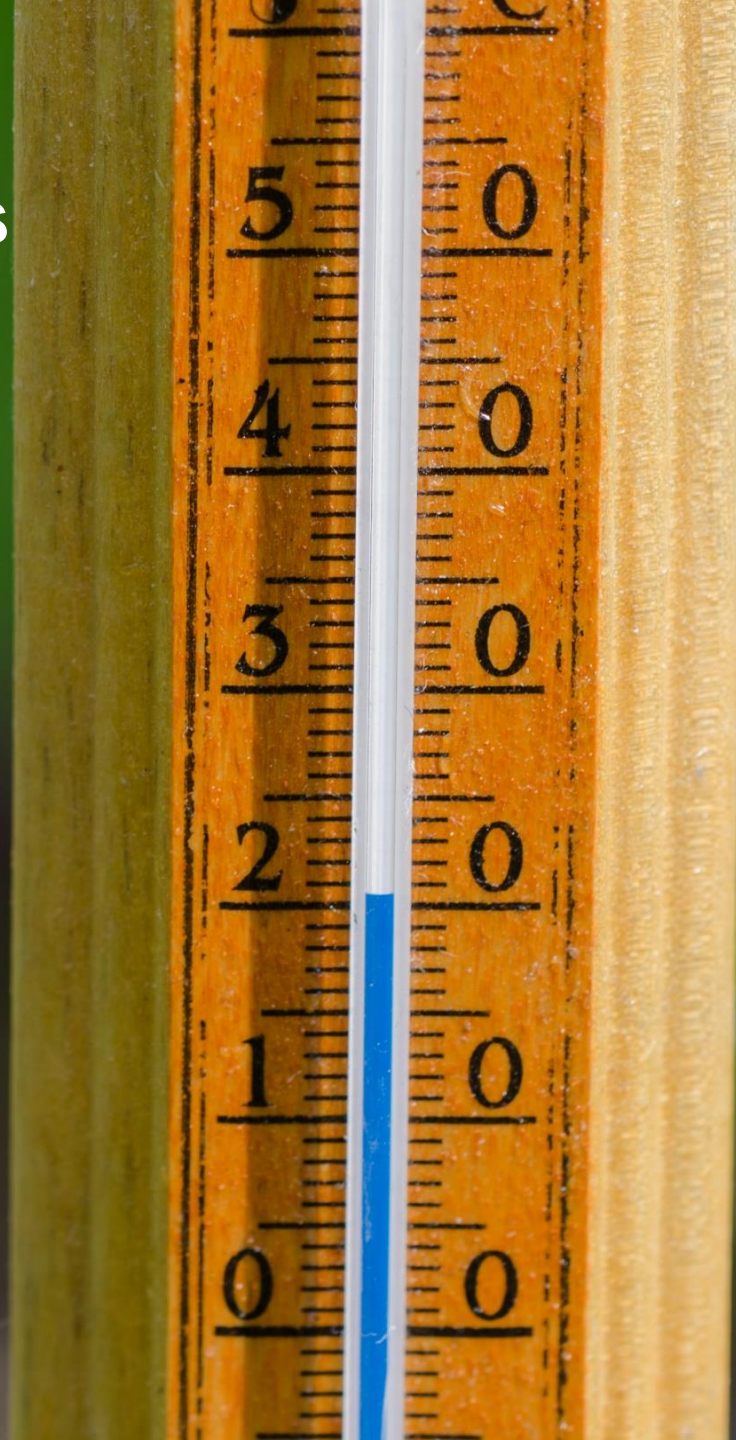
# Sustainable supply of metals to climate friendly societies

Mikael Staffas, President and CEO, Boliden  
Stockholm, November 19th

# Kalevala and the role of metals



**A new society requires  
sustainable solutions**



# Europe's low-carbon 2050 relies on higher quantities of strategic metals

## Wind



**+300%**

metals demand increase by  
2050

## Solar



**+200%**

metals demand increase by  
2050

## Batteries



**+1000%**

metals demand increase by  
2050

## An electric car contains:

- 70 kg copper
- 46 kg nickel
- 17 kg zinc
- 14 kg cobalt
- 12 kg lead

Source: World Bank

## A traditional car contains:

- 20 kg copper
- 4 kg nickel
- 10 kg zinc
- 0 kg cobalt
- 10 kg lead



# Europe's challenge? High dependency on imported primary raw materials

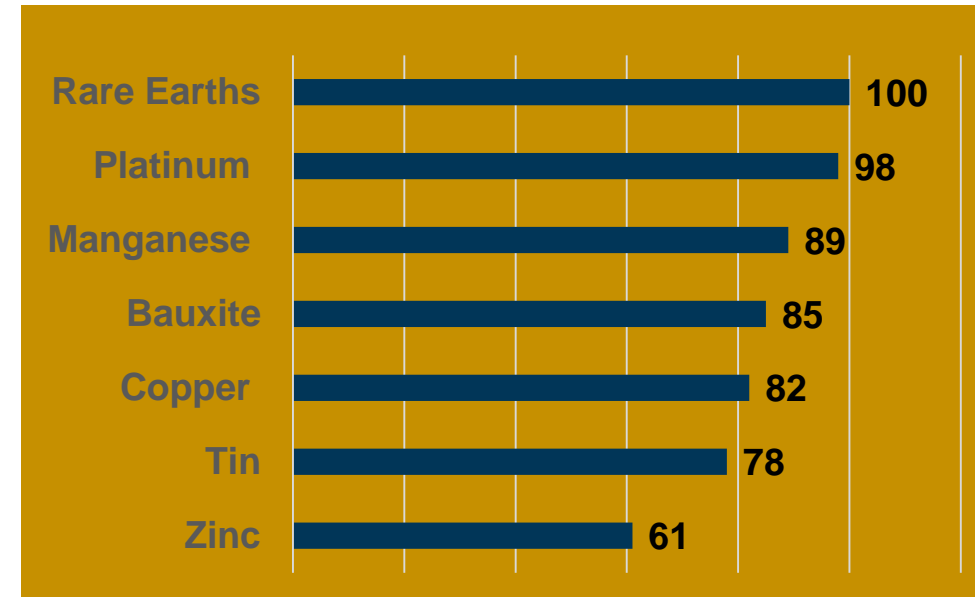
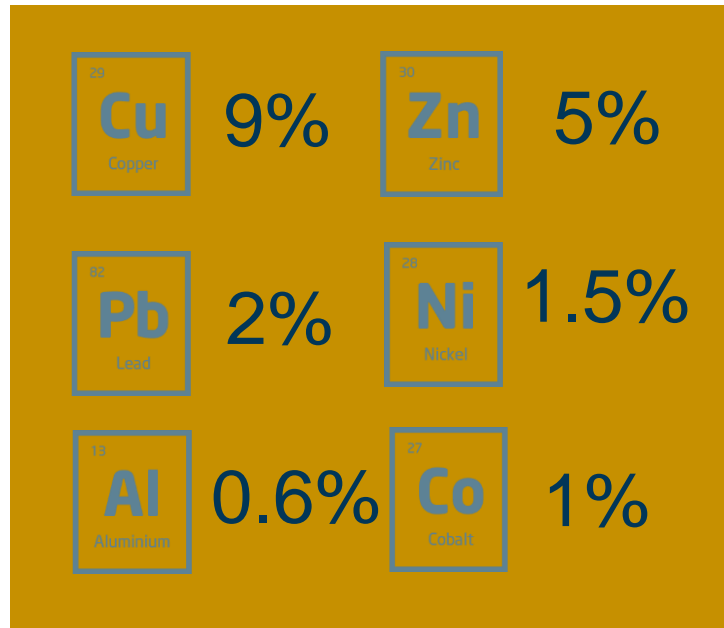


A low share of global mining

+



A high import dependency on primary raw materials



# Boliden – A part of the solution



- MINES
- SMELTERS
- HEADQUARTER



# Boliden's contradictions a key for success



## Manageable in size

- ~5,800 co-workers

## Local

- Strong presence in local communities

## Conservative

- Preservative and corporate culture



## Big corporation

- ~8 BUSD market value
- Leading position in base metals in Europe

## Global

- Global network and concentrate sourcing

## Cutting edge technology

- High degree of automation



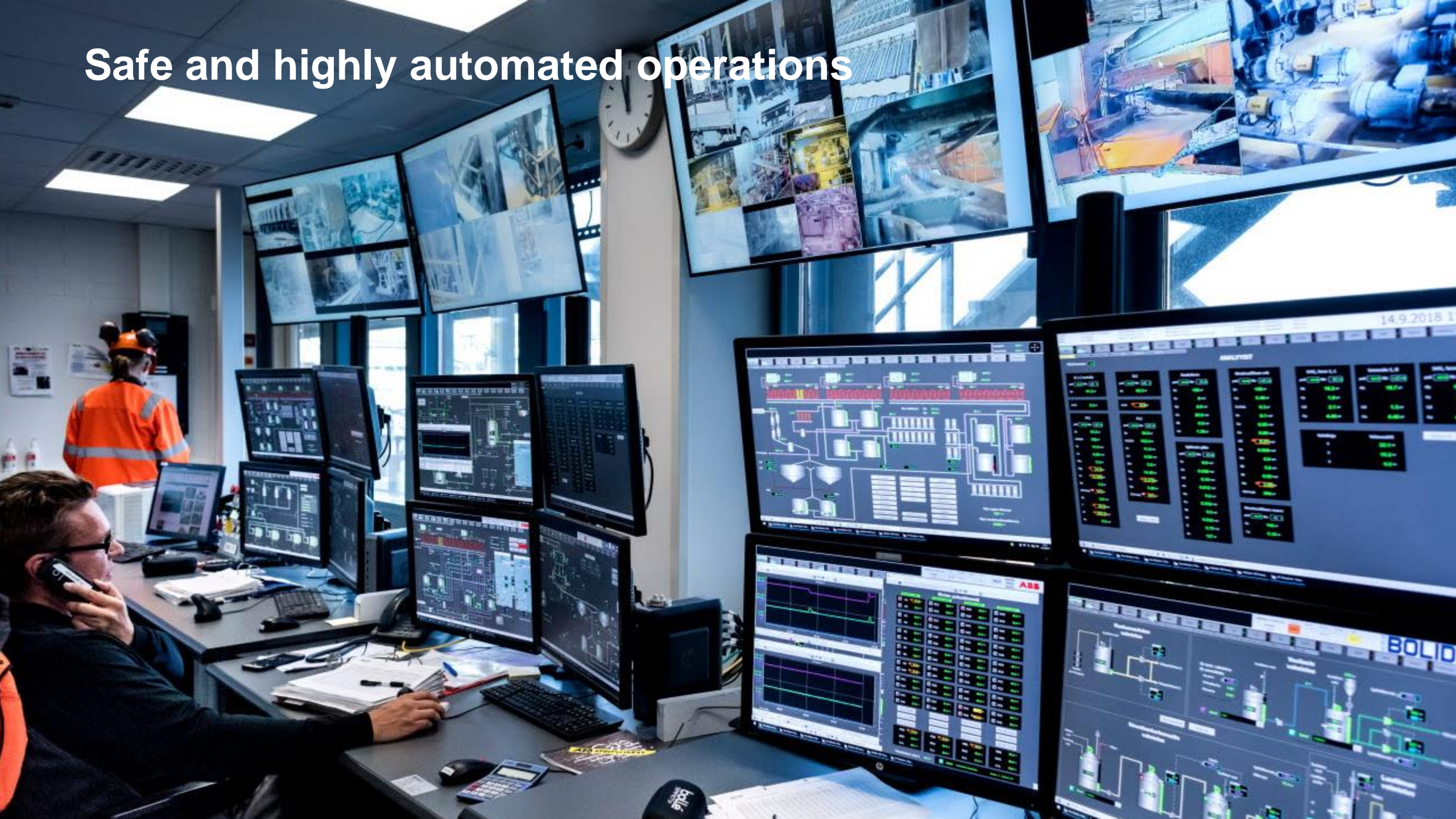


# Metals from Boliden – a part of the solution



Metal	Main use	Other use	Place in the EU (mining)
Copper	Electricity	Heat exchanger Brass/Bronze	2
Zinc	Galvanization	Brass Batteries	1
Lead	Batteries	Radiation protection	1
Nickel	Stainless steel	High tech Batteries	2
Palladium Platinum	catalytic converter	High tech	1?
Tellur	Solar cells		1
Cobalt	Batteries		1?
Gold Silver	Financial	Jewelry Electronics	2-3

# Safe and highly automated operations



# Electrification in arctic climate is possible

- partnerships creates success



# Delivering sustainable metals to societies in Europe



Aitik 45  
Kevitsa 9,5  
Garpenberg 3,0

Tara tailings dam  
Boliden Area tailings dam



Harjavalta expansion  
Rönnskär expansion  
Odda expansion



Martin wants to get the job done.  
He couldn't without metals.

Zn

Ag

Pb

Au

Cu

Public transportation is essential for growing communities. It brings people and jobs closer together and makes it possible for people to move forward in life. Trains, buses and bridges all depend on metals like zinc, which protects steel constructions against corrosion. Martin is ready to do his best, and so are our metals.

**WIMZ** **BOLIDEN**