

We're passionate  
about electronics



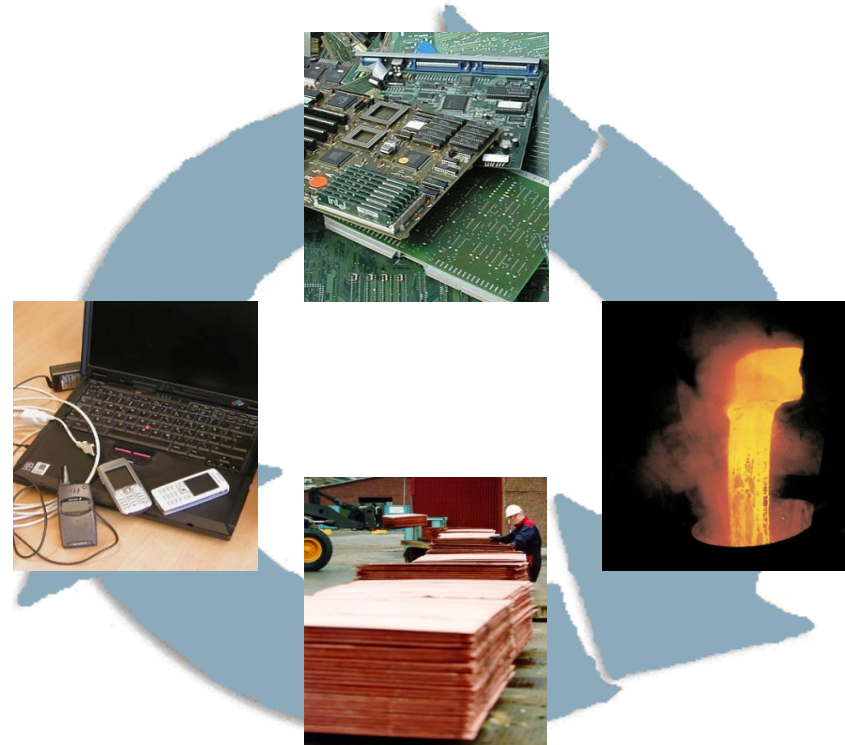
## Expansion of e-scrap capacity at Rönnskär

Roger Sundqvist  
General Manager Rönnskär Smelter

**BOLIDEN**

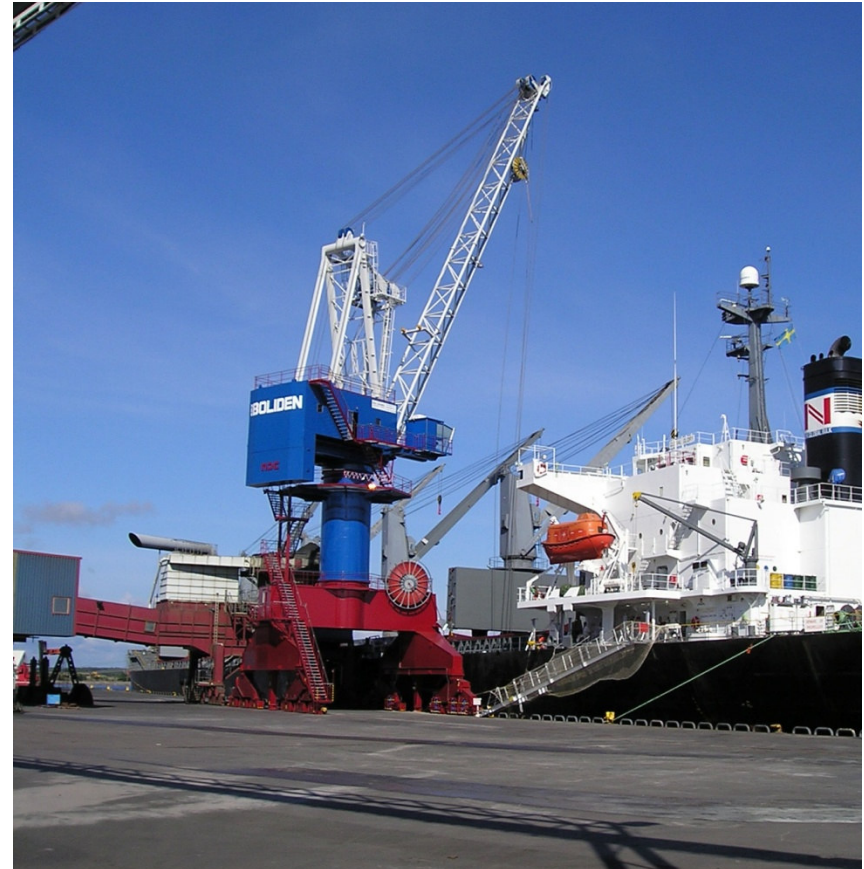
# Expansion in brief

- Capacity for recycling of electronic scrap from 45,000 to 120,000 tonnes/year
- New Kaldo plant – Capex SEK 1.3 billion
- Start end 2011/beginning 2012
- Increased production
  - Gold + 2 tonnes
  - Silver + 32 tonnes
  - Copper + 14,500 tonnes



# Rationale for expansion

- Increased profitability
- Lower volatility
- Increased availability of e-scrap
- Availability for copper concentrate expected to be low for several years
- Maintain position as world leader
- Contribute to a sustainable society



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# Competitive position in e-recycling

- Proven technology
- Skilled personnel
- Best Available Technology for environment, health and safety
- Established market relations
- Excellent logistics (own harbour and the Copper shuttle)
- Synergies with existing production



# E-scrap recycling within EU – legislation will drive e-scrap volumes

WEEE-directive from 2005

**Target to collect 4 kg per person and year = 90,000 tonnes/y**

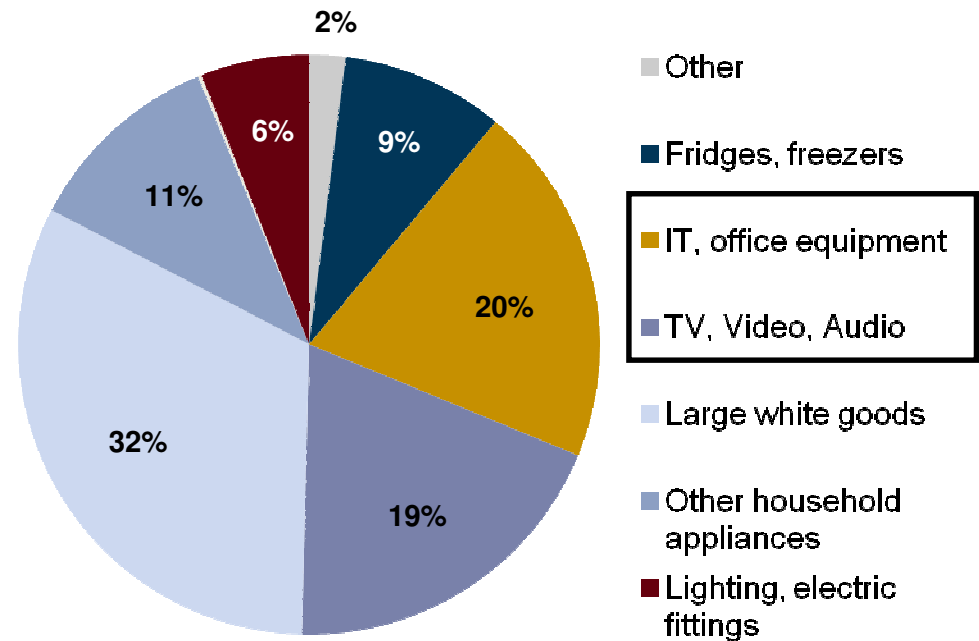
WEEE-directive 2016 (not yet decided)

**Target to collect 13 kg per person and year = 270,000 tonnes/y**

**Collected in Sweden 2008**

**16 kg per person and year**

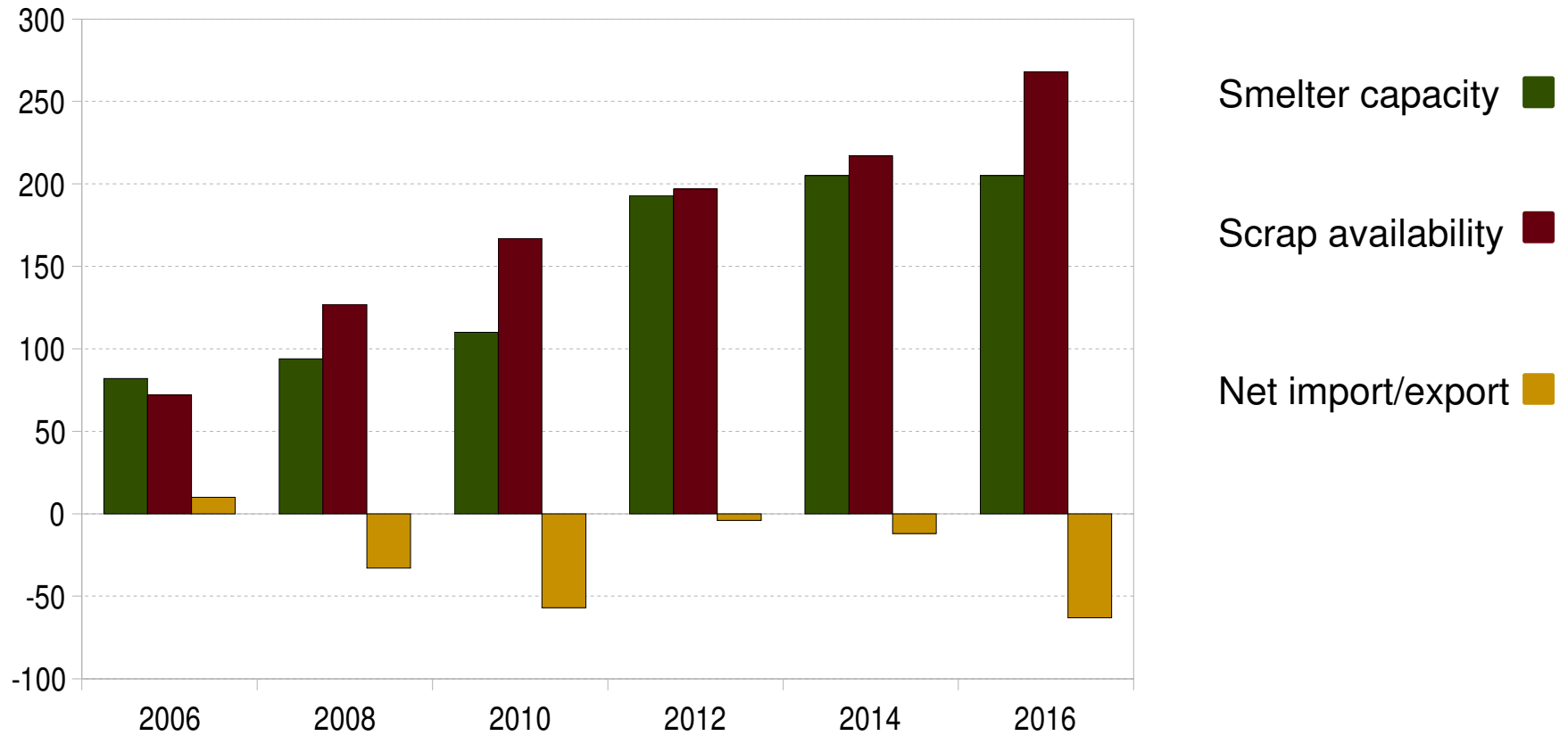
WEEE = Waste from electrical and electronic equipment



=main source of supply

# Electronic scrap within EU

## Supply and demand





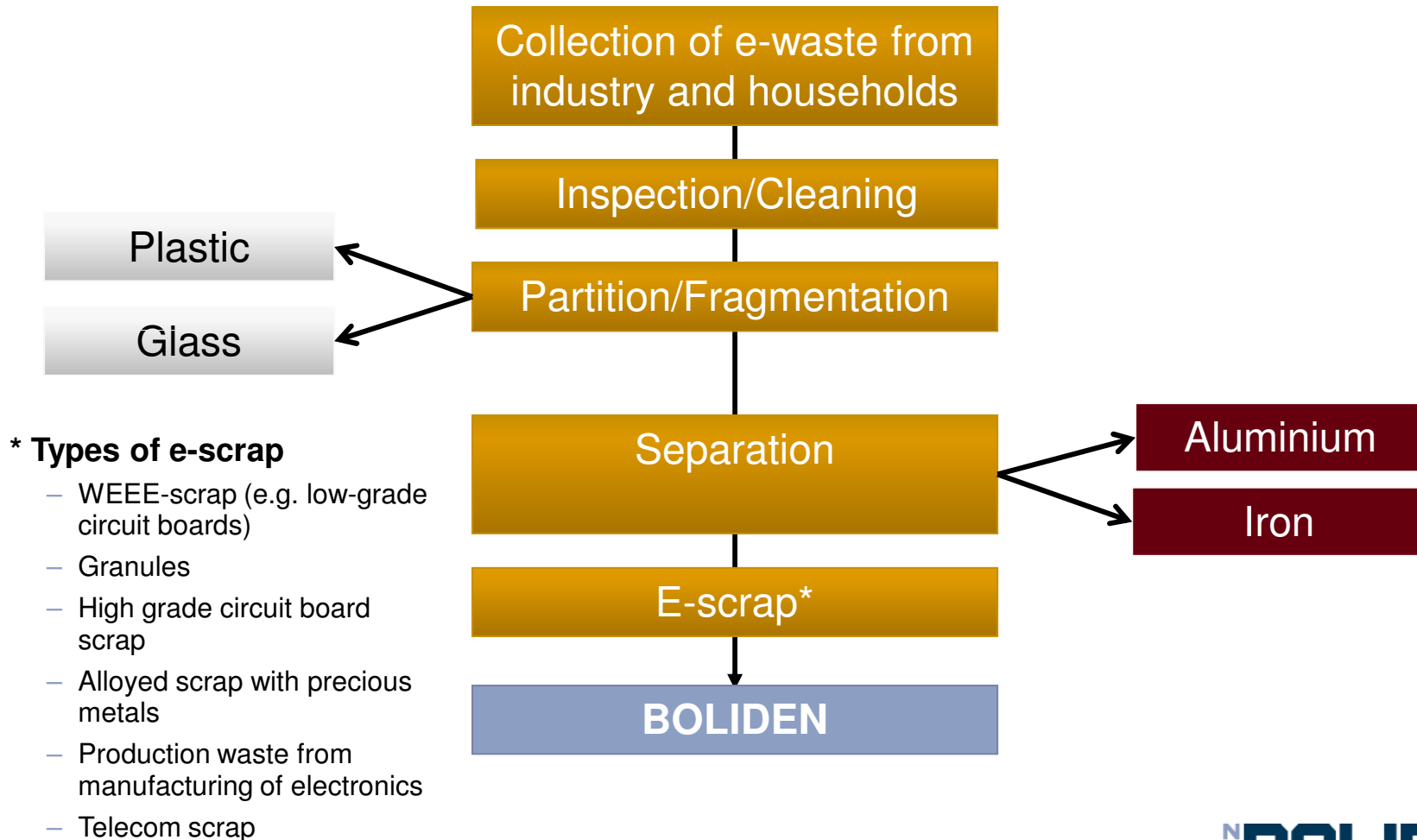
# Supply of e-scrap to Rönnskär



Europe:	70% of e-scrap volume
Scandinavia:	20% of e-scrap volume
North America:	5% of e-scrap volume
Others:	5% of e-scrap volume

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# The value chain for electrical and electronic waste





# Competitors

- Europe
  - Aurubis, Hamburg
  - Aurubis, Lünen
  - Umicore, Hoboken
  
- Rest of the world
  - Xstrata, Canada
  - Dowa, Japan
  
- Alternatives
  - Exports to China and Africa
  - Waste deposit instead of recycling

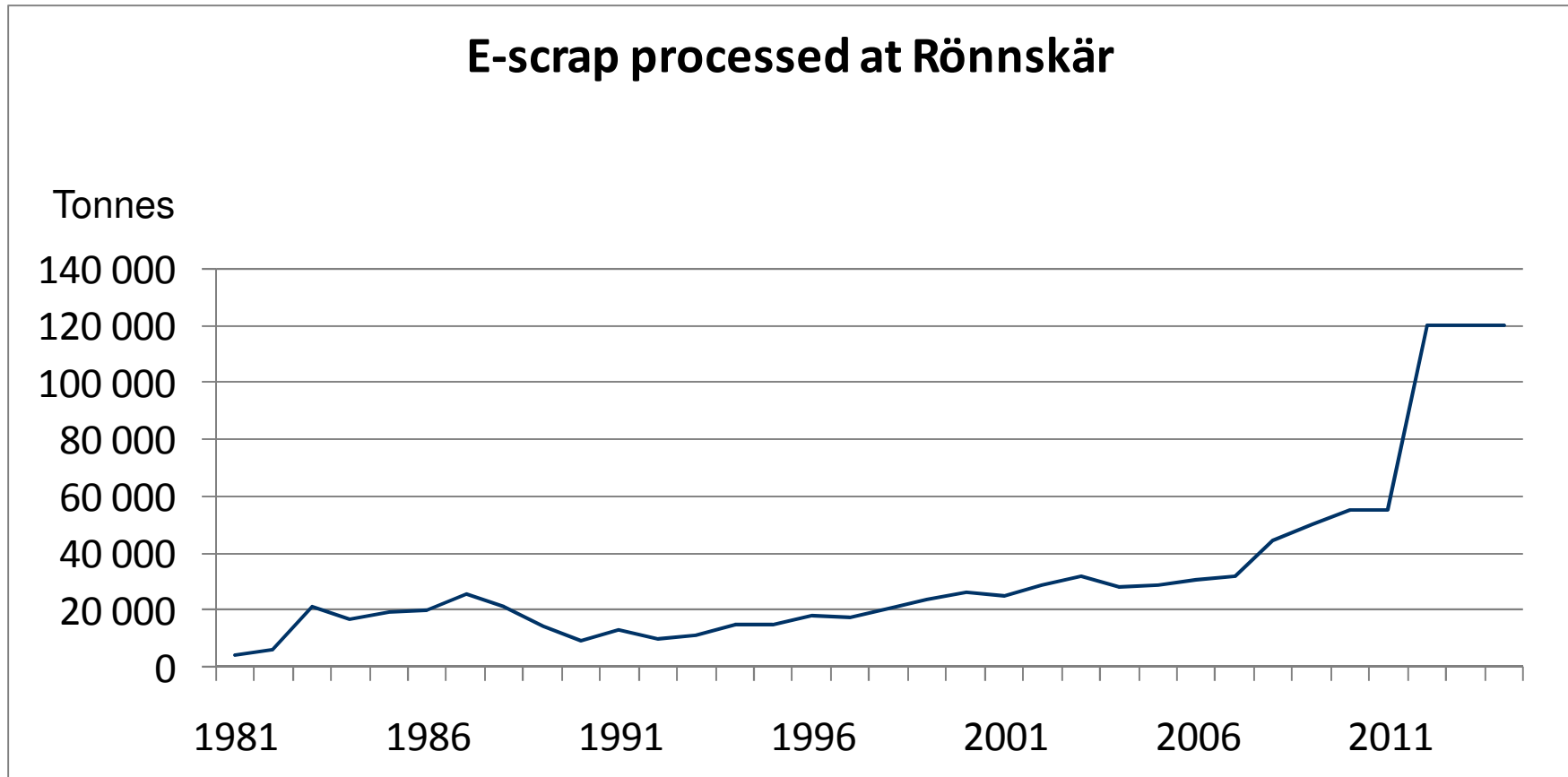


# Existing Kaldo



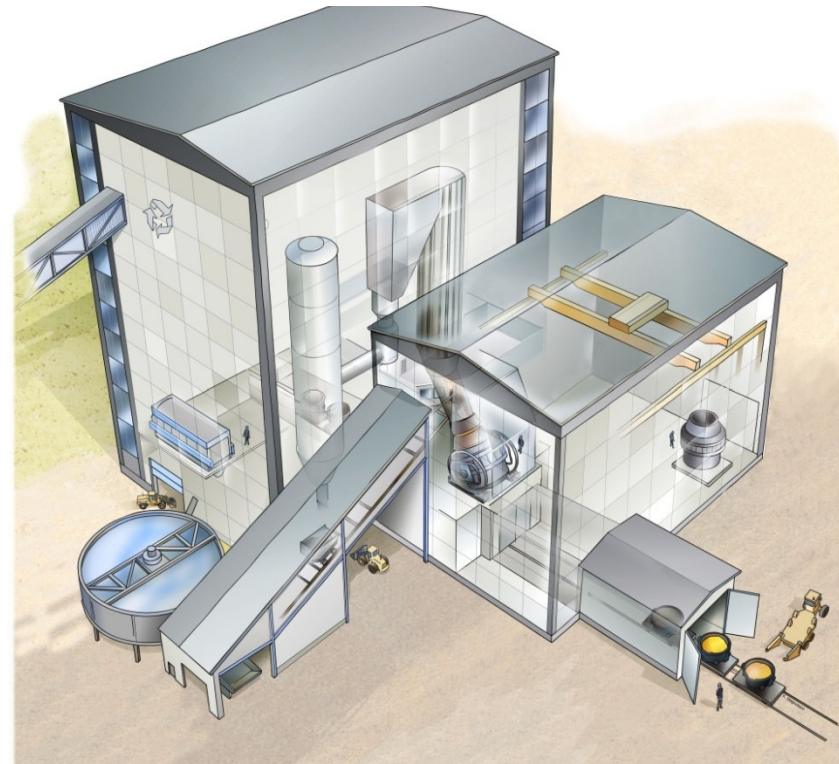
- Start-up 1976
- Treatment of electronic scrap since 1980
- Flexible unit, altering campaigns e-scrap and lead smelting
- Superior capacity compared to competing technologies
- World class environmental performance
- Continuous improvements

# More than 30 years of experience in e-scrap smelting and recycling

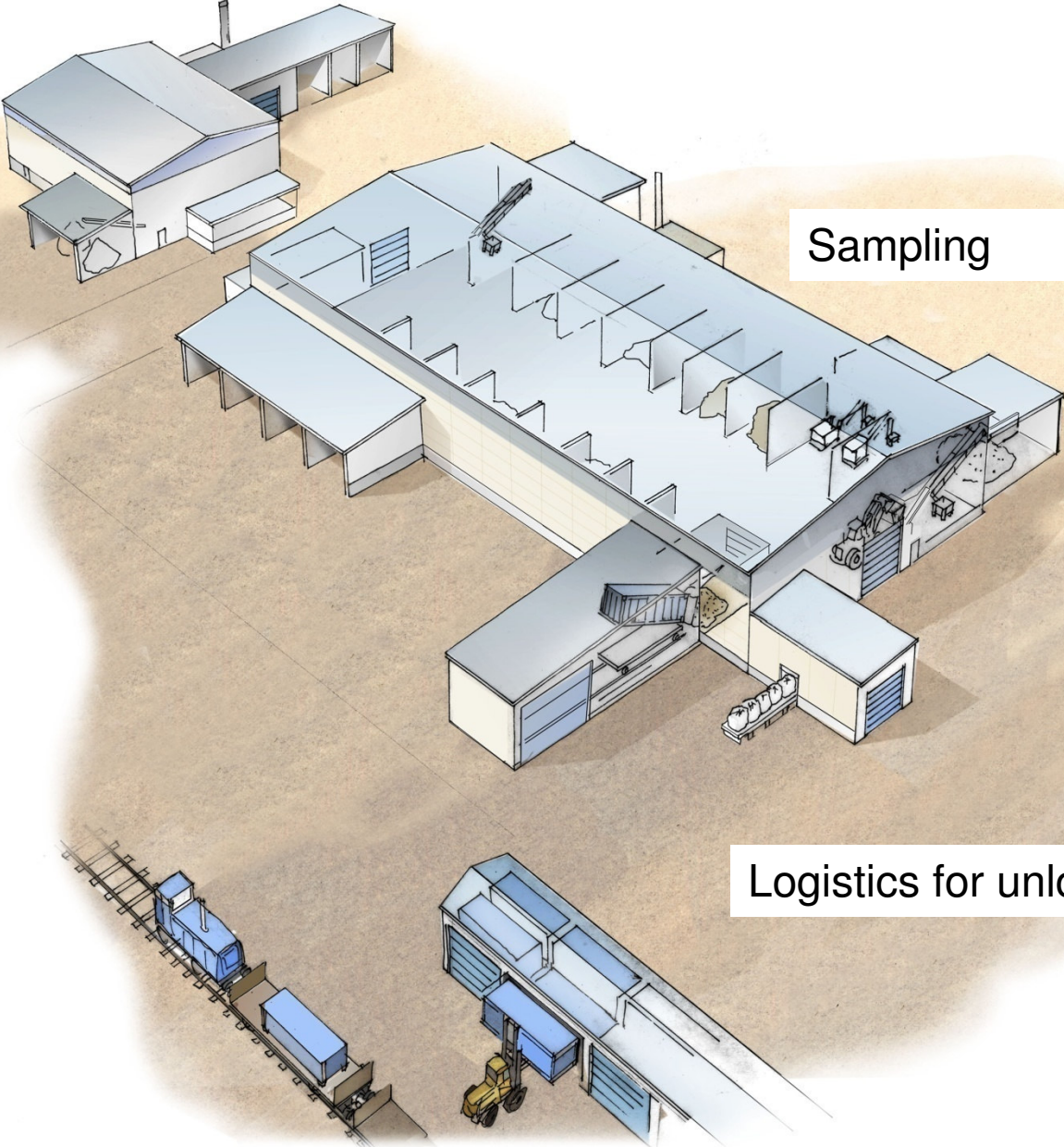


# New Kaldo Plant

- Indoor storage
- Kaldo furnace
- Boiler
- Gas cleaning equipment
- Granulation plant



Shredder for pre-treatment



Sampling

Logistics for unloading





# Environmental Performance

- Increased energy recycling
  - excess heat from scrap smelting transformed into electricity or district heating
- Decreased fugitive emissions of dust
  - increased storage capacity for electronic scrap
  - enhanced conveyor system to kaldo furnace
- Transportation
  - less internal transportation
  - future supply mainly with ship or train
- CO<sub>2</sub>-emissions
  - raw material related emissions are not included in the European trading with allowances (ETS)
- Permit from County Administrative Board 26/06/2008



# 120,000 tonnes per year

