



## **Boliden Area**

Capital Markets Day  
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# Boliden Area overview

- Concentrator, leaching and tellurium plant
- Underground mines
  - Renström
  - Kristineberg
  - Kankberg
- Open pit mines
  - Maurliden East
  - Maurliden West
- Production, kton/y
  - Ore 1,650
  - Rönnskär slag 200
- Products and customers
  - Copper and gold concentrate to Rönnskär
  - Zinc concentrate to Odda, Kokkola, external
  - Lead concentrate external
  - Tellurium cement external
- Recent investments
  - Ore handling
  - Hötjärn tailings pond



**NEW BOLIDEN**

# Renström

## Key facts:

- Ore production 300 kt/y
- Depth 1,250 meters
- Cut-and-fill mining
- 20 km from concentrator
- Complex ore; Au, Ag, Cu, Zn and Pb
- Multiple small deposits
- High ore value
- New hoist machinery
- Reserves & resources: 2.3 & 6.1 mt
- 100 employees



# Kristineberg

## Key facts:

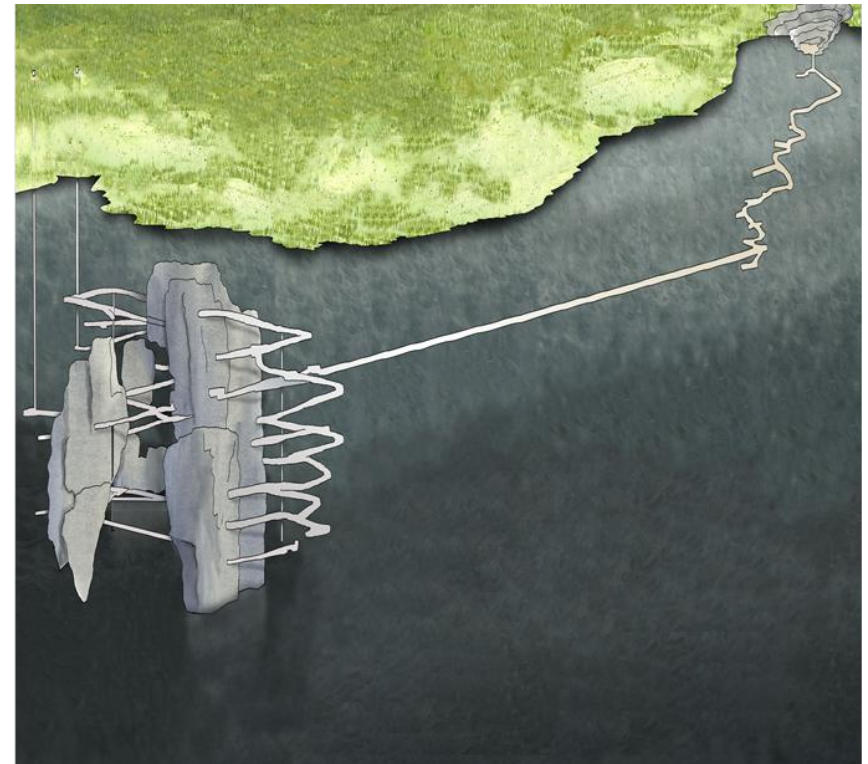
- Oldest mine in the Boliden area
- Ore production 650 kt/y
- Depth 1,250 meters
- Cut-and-fill mining
- 95 km from concentrator
- Complex ore; Au, Ag, Cu, Zn and Pb
- Gold bearing ore body depleting 2013
- Reserves & resources: 4.8 & 6.4 mt
- 200 employees



# Kankberg

## Key facts:

- Newest mine in the Boliden area
- Ore production 320 kt/y
- Large annual variations, low in beginning
- Depth 400 meters
- Cut-and-fill mining
- 10 km from concentrator
- Gold/Tellurium ore
- Reserves & resources: 3.1 & 0.4 mt
- 70 employees



# Maurliden East and West

## Key facts:

- Open pits 2 km apart
- 50 km from concentrator
- Production to balance other mines in area
- Contractors for flexibility

## Maurliden West:

- Ore production approx 250 kt/y
- Main metal: zinc
- Reserves & resources: 1.3 & 1.4 mt

## Maurliden East:

- Ore production approx 500 kt/y
- Mine depletes early 2013
- Main metal: copper
- Reserves & resources: 0.5 & 0.4 mt

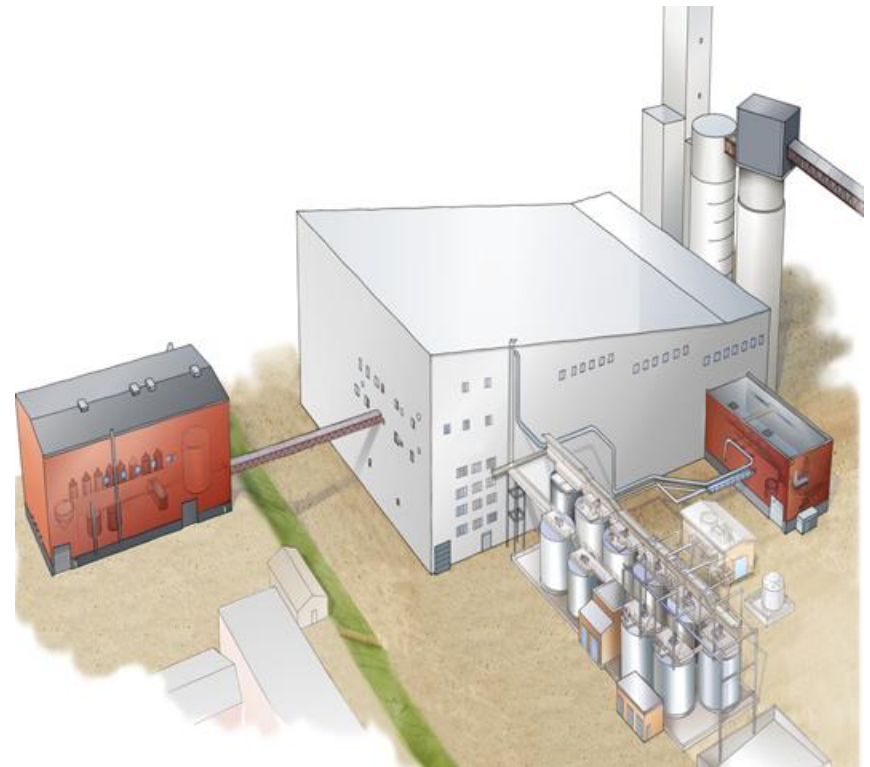


# Boliden Area Operations

## Concentrator

### Key facts Concentrator

- Total production 1,850 kt
  - Ore production 1,650 kt
  - Slag 200 kt
- Ore and slag transported by truck
- Autogeneous grinding and flotation.
- Gold extracted through leaching.
- Construction of a Tellurium plant 2012
- Important investments 2008-2012
- 90 employees



# The Boliden Area Operations

## More complex than other operations within Boliden

Underground mines  
High degree of fixed costs

### Kristineberg



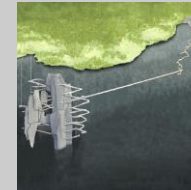
Cu, Au, Zn, Ag  
Medium value  
High volume

### Renström



Au, Ag, Zn, Cu, Pb  
High value  
Low volume

### Kankberg



Au, Te, Ag  
High value  
Increasing volume

Maurilden Open pits  
Low degree of fixed costs

### Maurilden Open pits

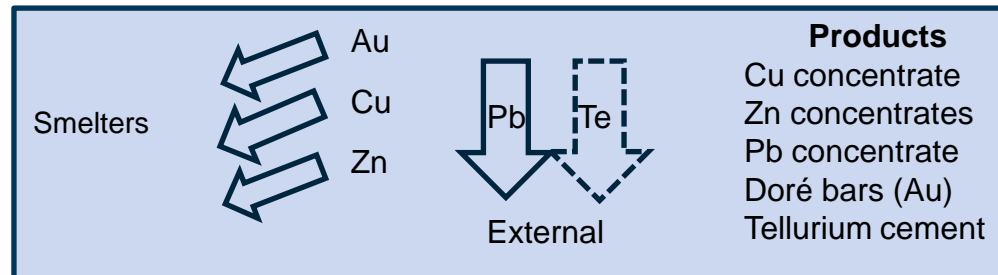
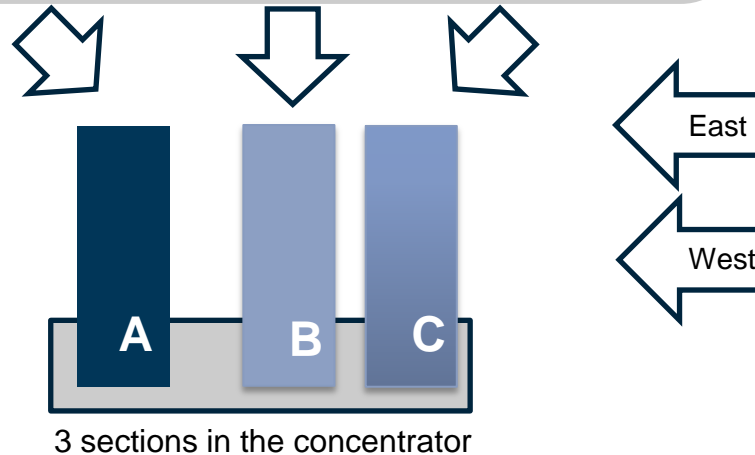


Cu, Au, Ag  
Low value  
Flexible volume

### Rönnskär



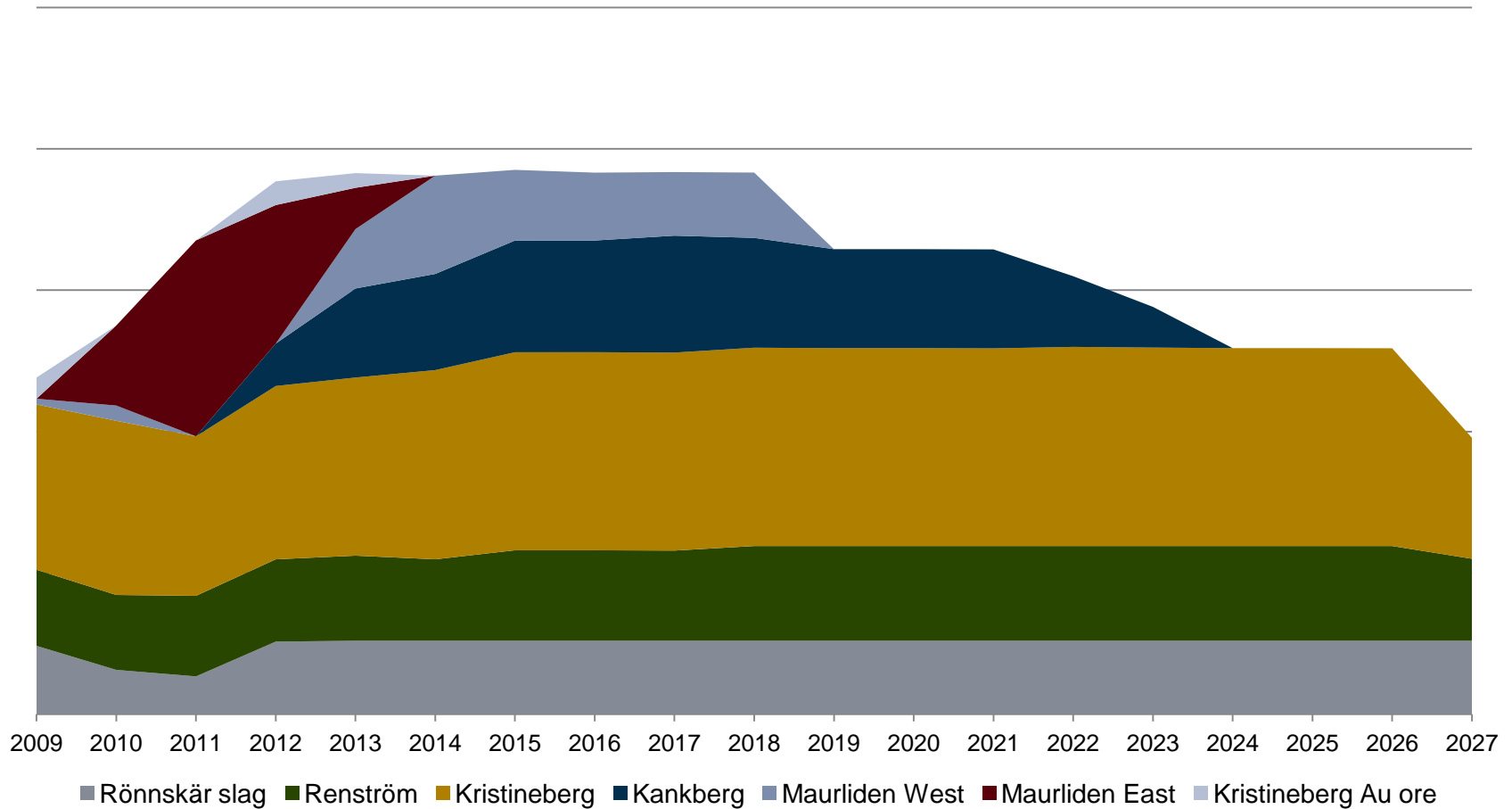
Slag; Cu, Au





# Boliden Area Operations

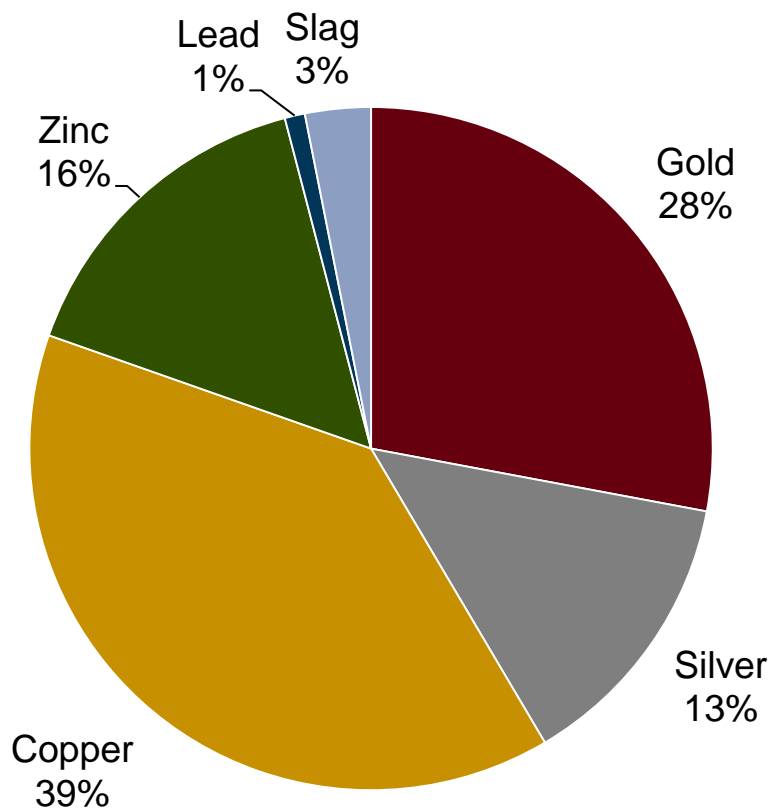
## Current production plan (indicative)



# Boliden Area Operation

## Revenue per metal

Acc. 2012



Change in metal weights going forward:

Copper	--
Zinc	+
Gold	+
Silver	+/-0
Lead	+/-0
Tellurium	+
Slag	+/-0

# The ramp up of Kankberg

- Mine in production since Q2
- Gold leaching up and running.
- Production of Tellurium before end of the year.
- Process time during start-up is long:
  - Mine production
  - Milling, flotation
  - Leaching two steps
  - Final gold refining at Rönnskär

# Summary

- Kankberg starting up
  - Mine starting as planned
  - Tellurium production Q4
  - 1,150 kg Au p.a.
  - Yearly variations – low in beginning
- Kristineberg Au ore body depleting
- Maurliden East depleting
- Mix change; Production moving from Cu towards Zn

# Metals for modern life

