



Global steel industry perspective – synthesis version

European Steel Technology & Application Days

Discussion document
Paris, 7 April 2014

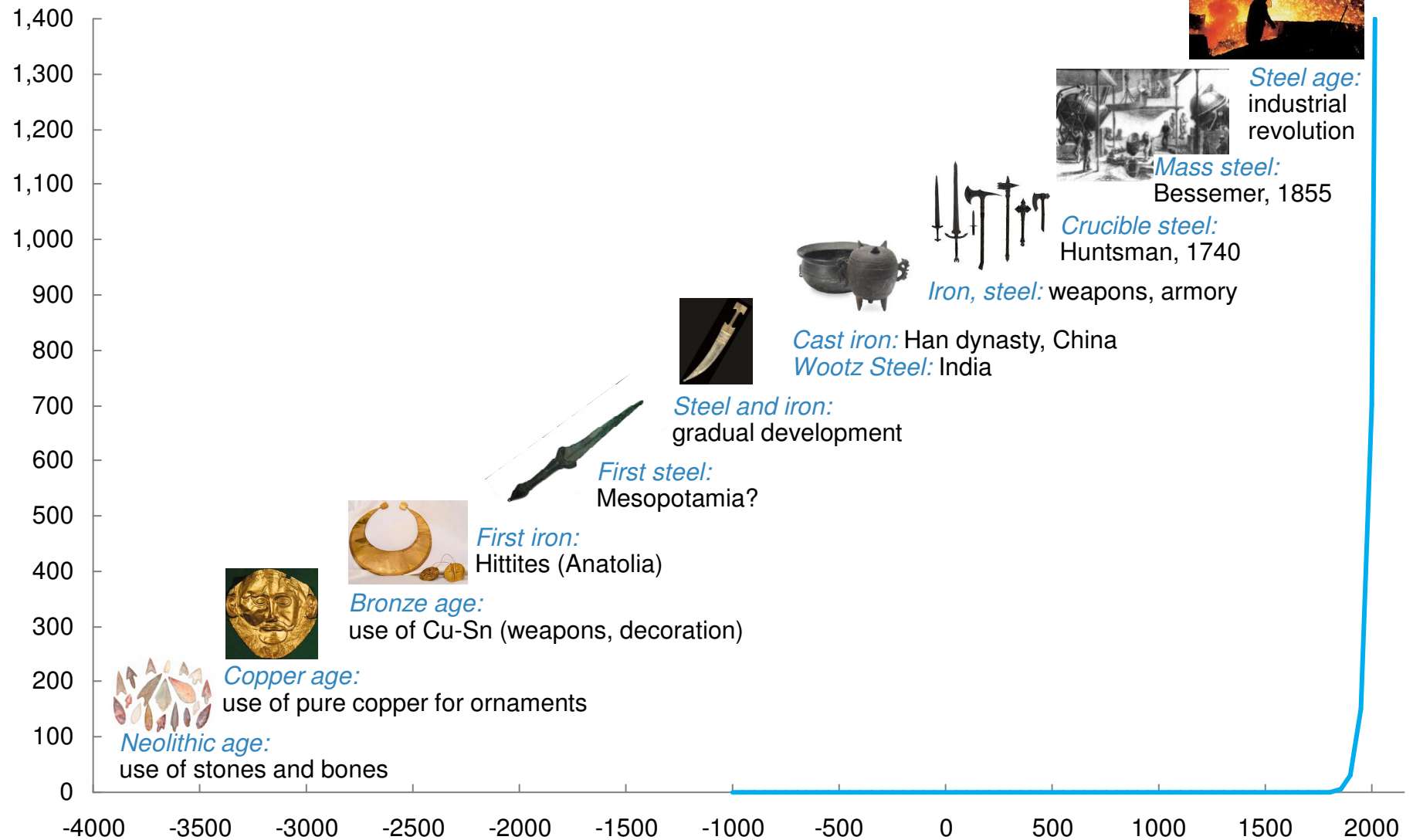
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Synthesis

- Steel is **by far the largest material in use, with** global demand of ~1.5 bn ton in 2013 (~2 trillion USD industry)
- **Steel demand to grow at 2-4% p.a. for the next decade** before leveling out (demand of ~2 Bn t by 2025-30). **Developing regions continue to drive growth (less China, more other developing regions – Asia, Africa)**
- **Overcapacity likely to stay** for the foreseeable future (mainly China, CIS, Europe, Japan)
- **Raw materials costs have quadrupled since 2002.** Current margins-over-raw materials are at or even below the levels of before the China boom period
- **Volatility to stay (demand, prices, margins)**
- Going forward
 - **Solve structural overcapacity** (globally and by product/region)
 - **Maximize "resource efficiency":** make more products with less resources, maximize the end application value, help other sectors be more efficient
 - **Avoid commoditization:** create value for users, adapt pricing to real (complexity) costs and capture application “value in use”
- **Vision of steel remaining the most important material on the globe – supported by sound economics, innovation, and resource efficiency**

Steel: a 3000-year old story of human development

Million tons per year

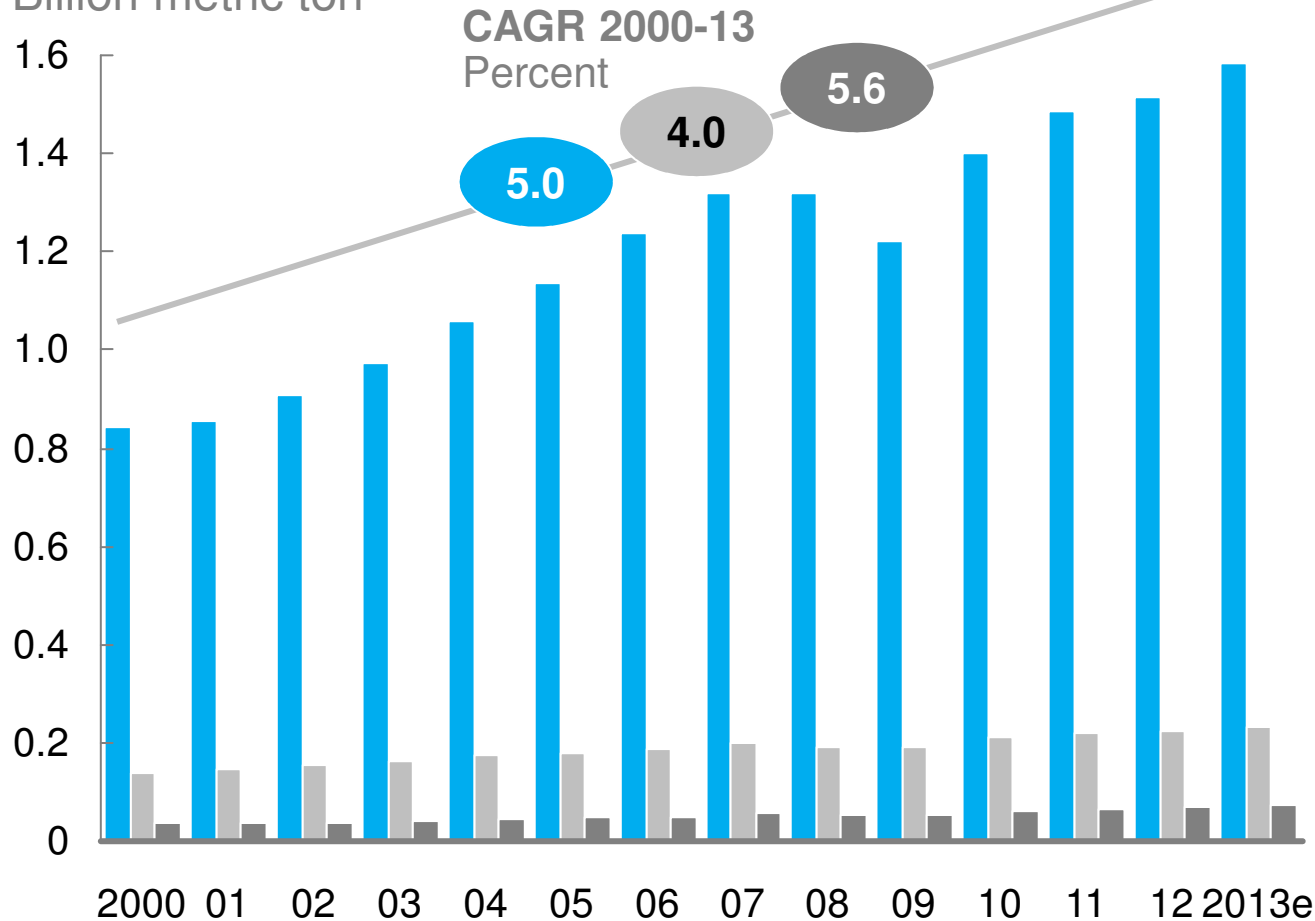


Steel is by far the largest material in use

■ Crude steel ■ Plastics¹ ■ Aluminium

Global consumption

Billion metric ton



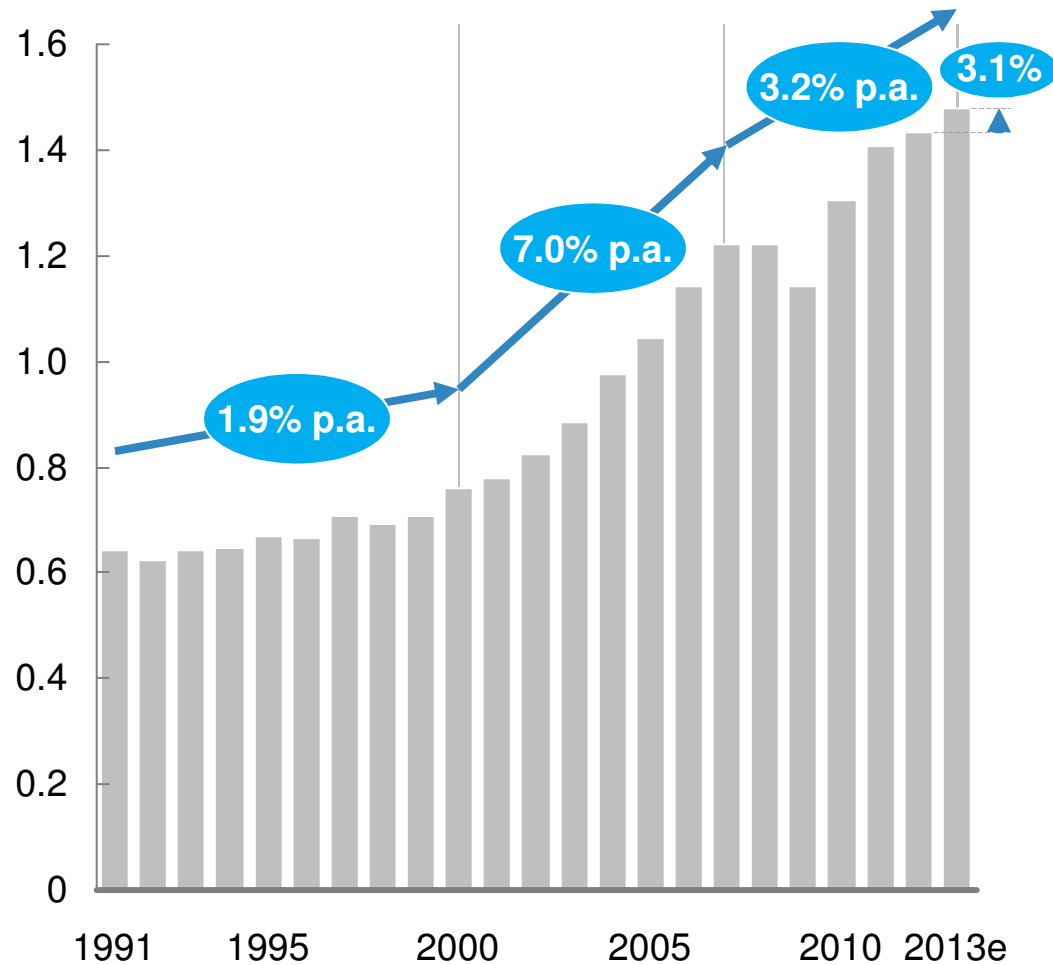
- **Steel consumption exceeds plastics and aluminum consumption by a factor 7 and 21 resp.**
- **Given the sheer difference in scale, substitution of large volumes of steel by competing materials are unlikely, even if it were technically feasible**

¹ Incl. ABS, EPS, PE, PA, PC, PET, PMMA, PP, PS, PVC, SAN

Global steel demand reached ~1.5 bn ton in 2013, growing at 3% year-on-year

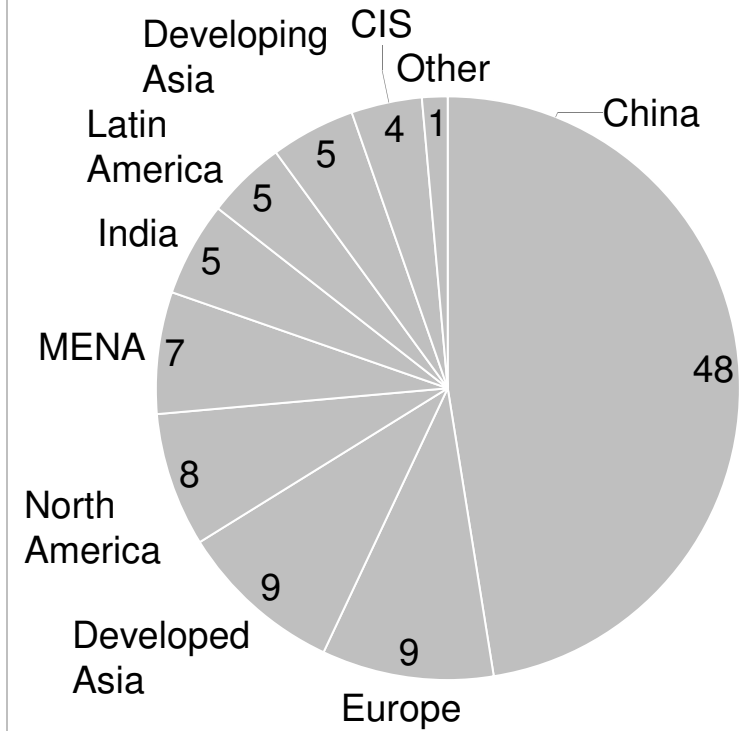
Apparent demand for finished steel products

Billion metric ton



Steel demand by region

Percent, 2013e, total = 1,477 Mt



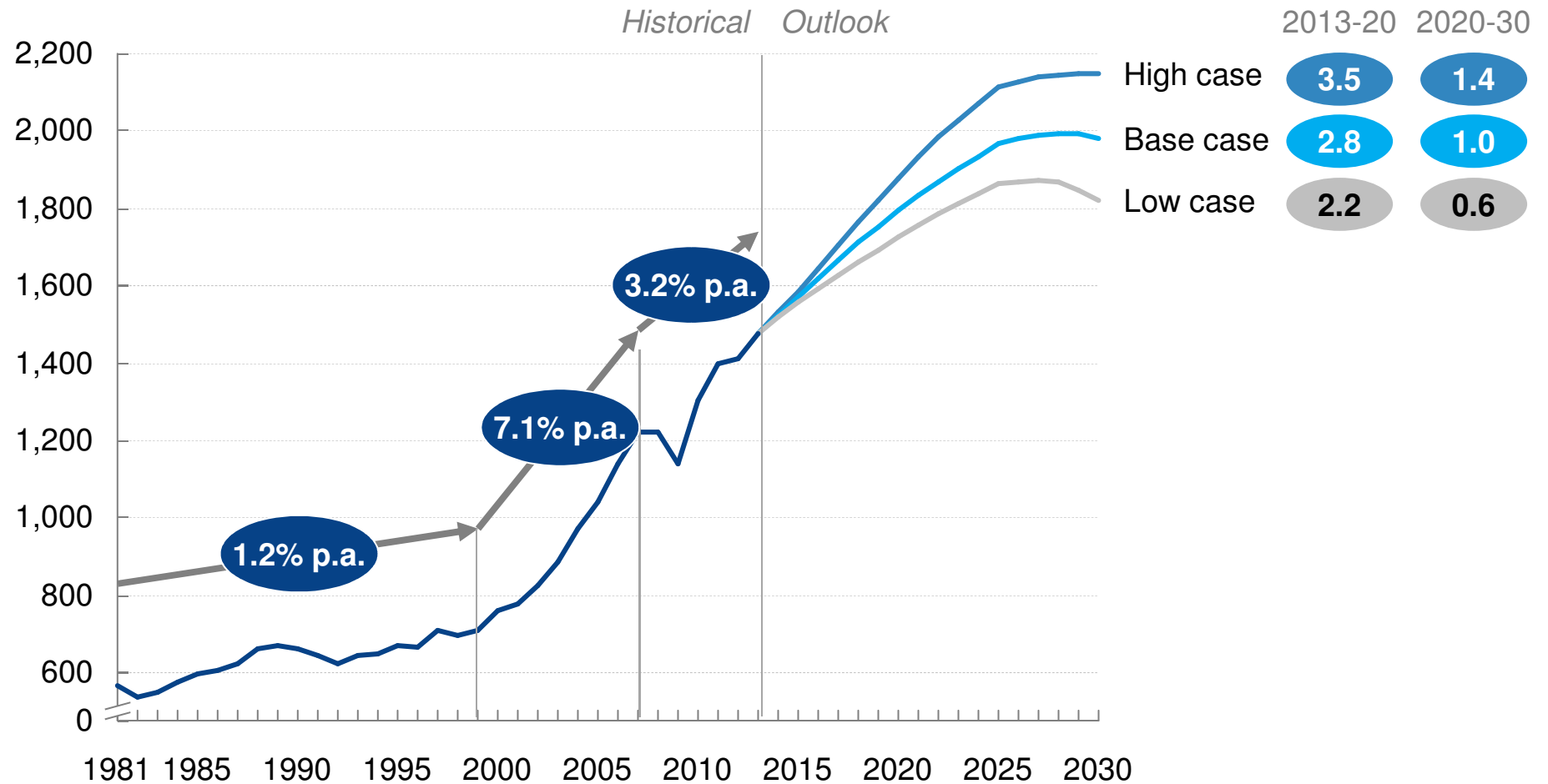
Global steel demand is expected to continue to grow at 2-4% p.a. for the next decade before leveling out

Apparent finished steel demand

Million metric ton

Growth rate

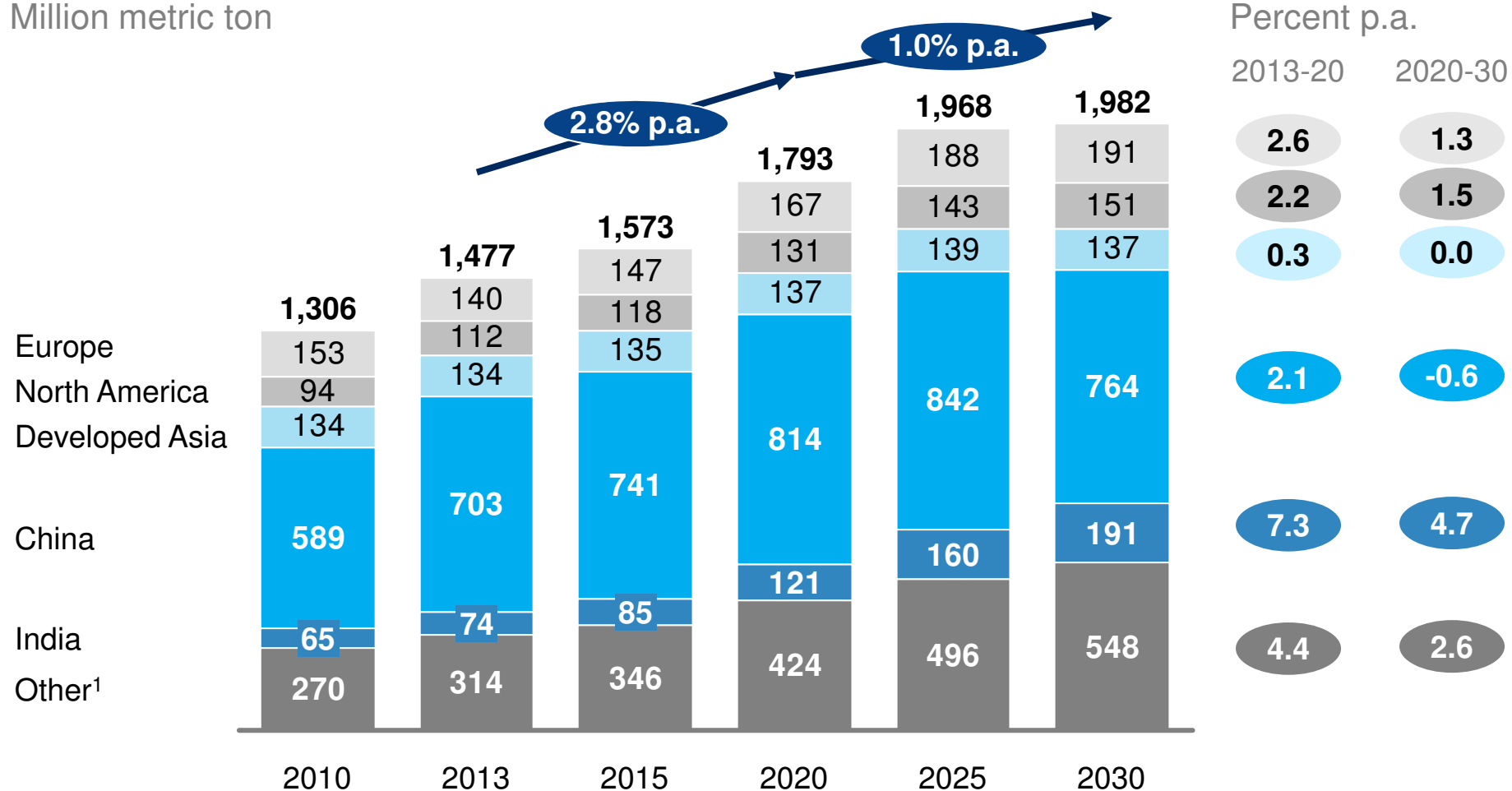
CAGR, percent



Developing regions will continue to drive steel demand growth, increasingly away from China and to other developing regions

BASE CASE

Apparent finished steel demand
Million metric ton

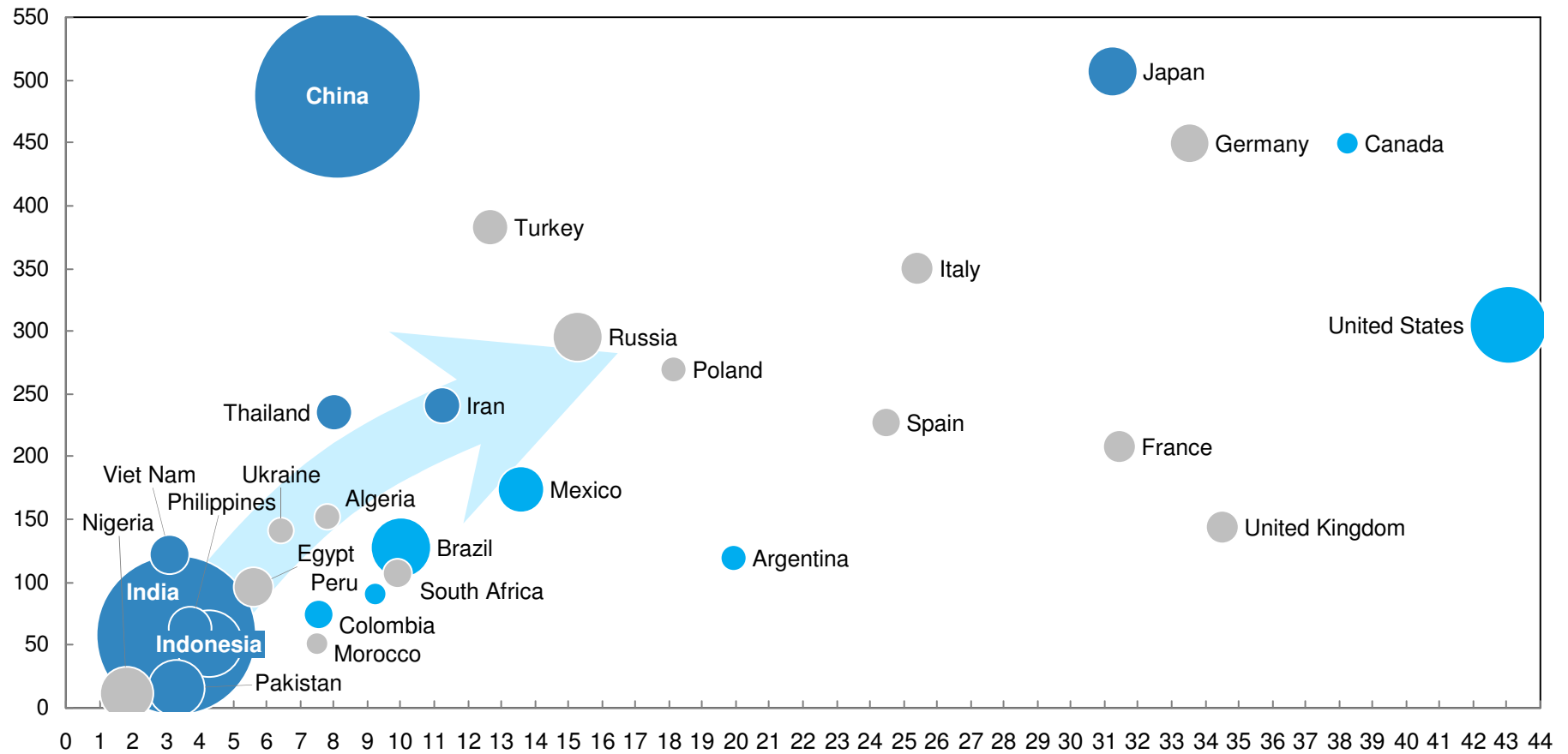


¹ Africa, other Asia, CIS, Oceania, MENA, Latin America

Asian and African countries hold the greatest potential for steel demand growth

Steel intensity, 2012

Kg finished steel per capita



GDP intensity

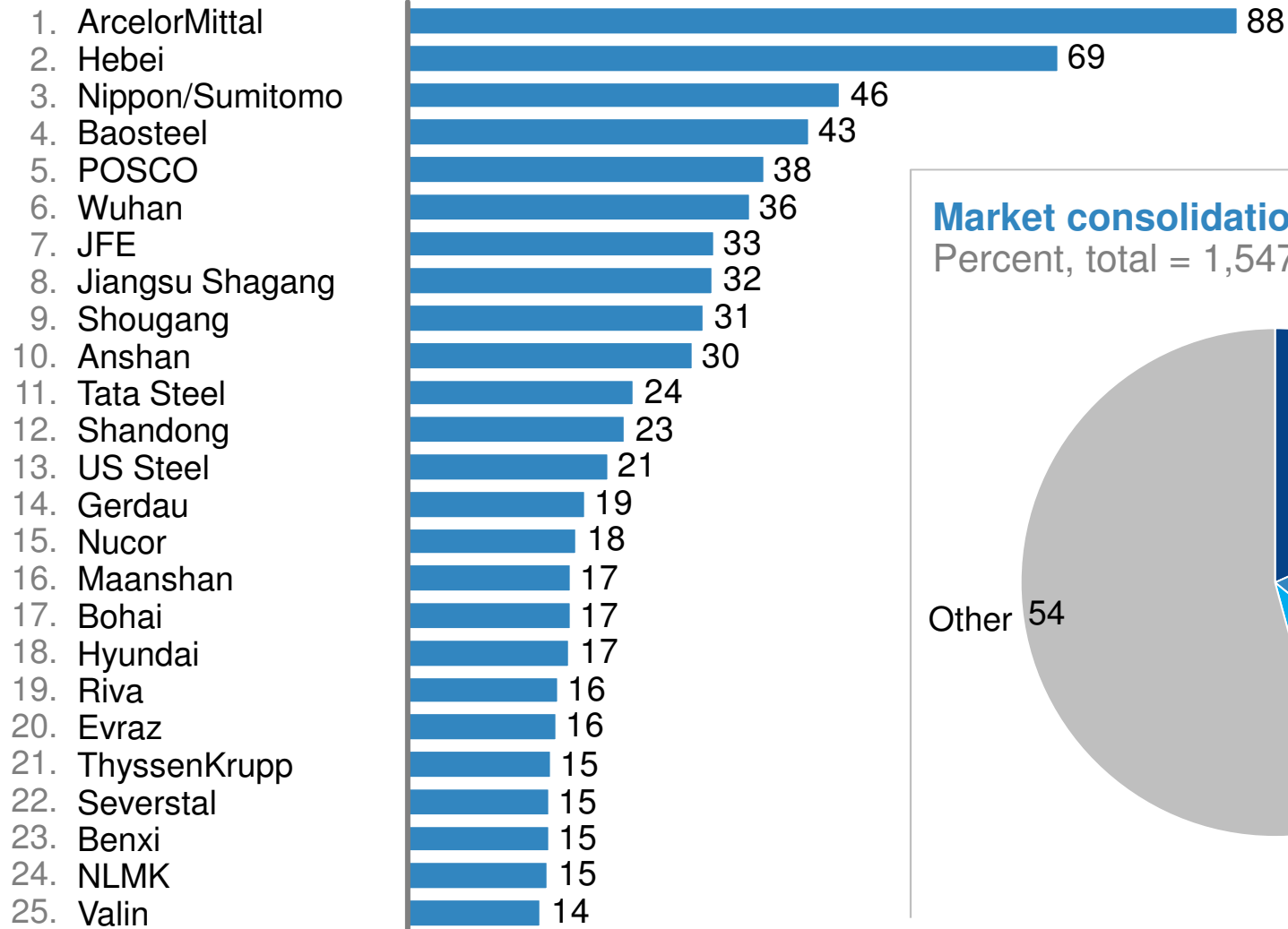
USD thousands per capita, real 2005, PPP¹ adjusted

¹ Purchasing power parity

Half of the top 25 steelmakers globally, which cover ~55% of supply, are Chinese

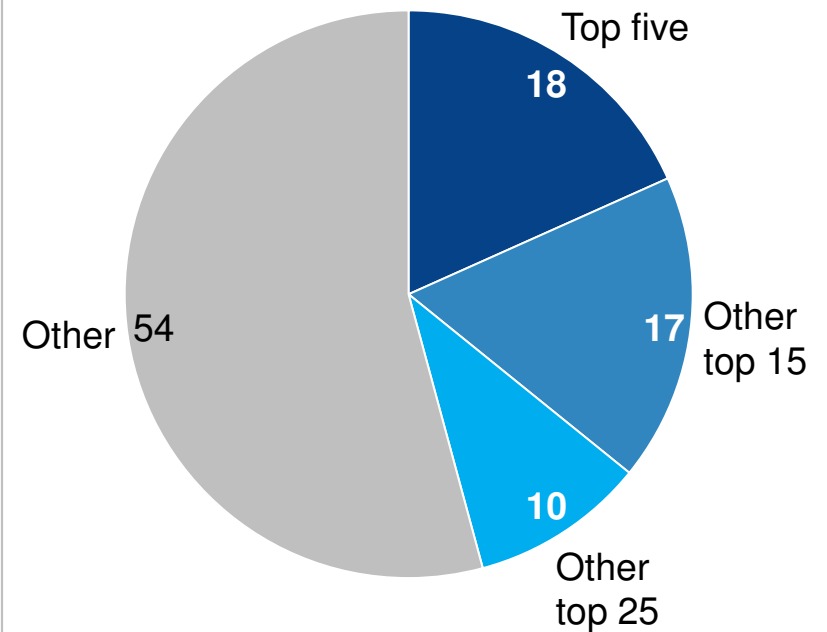
2012

Top 25 crude steel producers, 2012
Million metric ton



Market consolidation

Percent, total = 1,547 metric ton

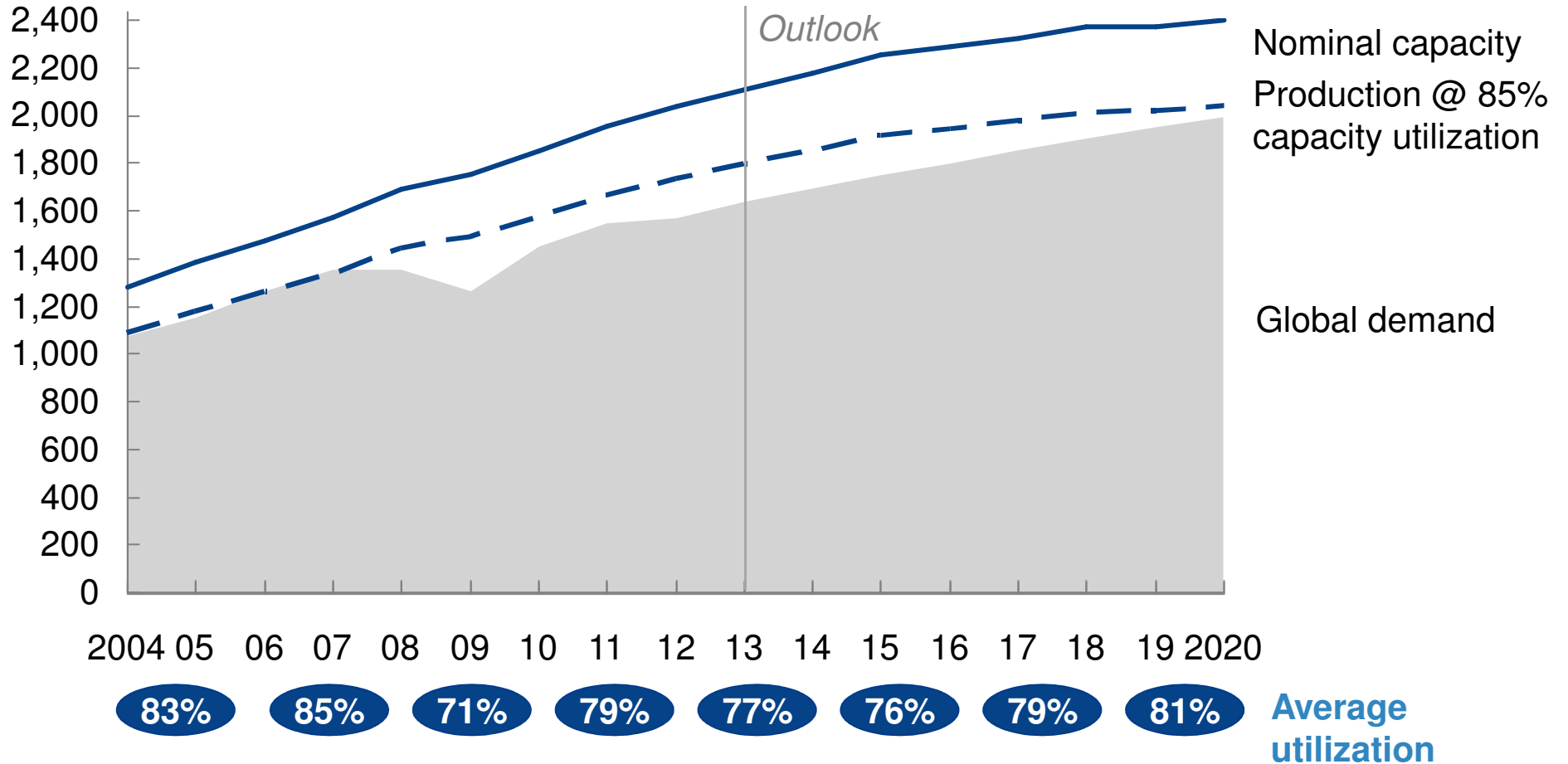


Overcapacity in the steel industry is likely to stay for the foreseeable future

BASE CASE

Global demand/capacity

Million metric ton, crude steel



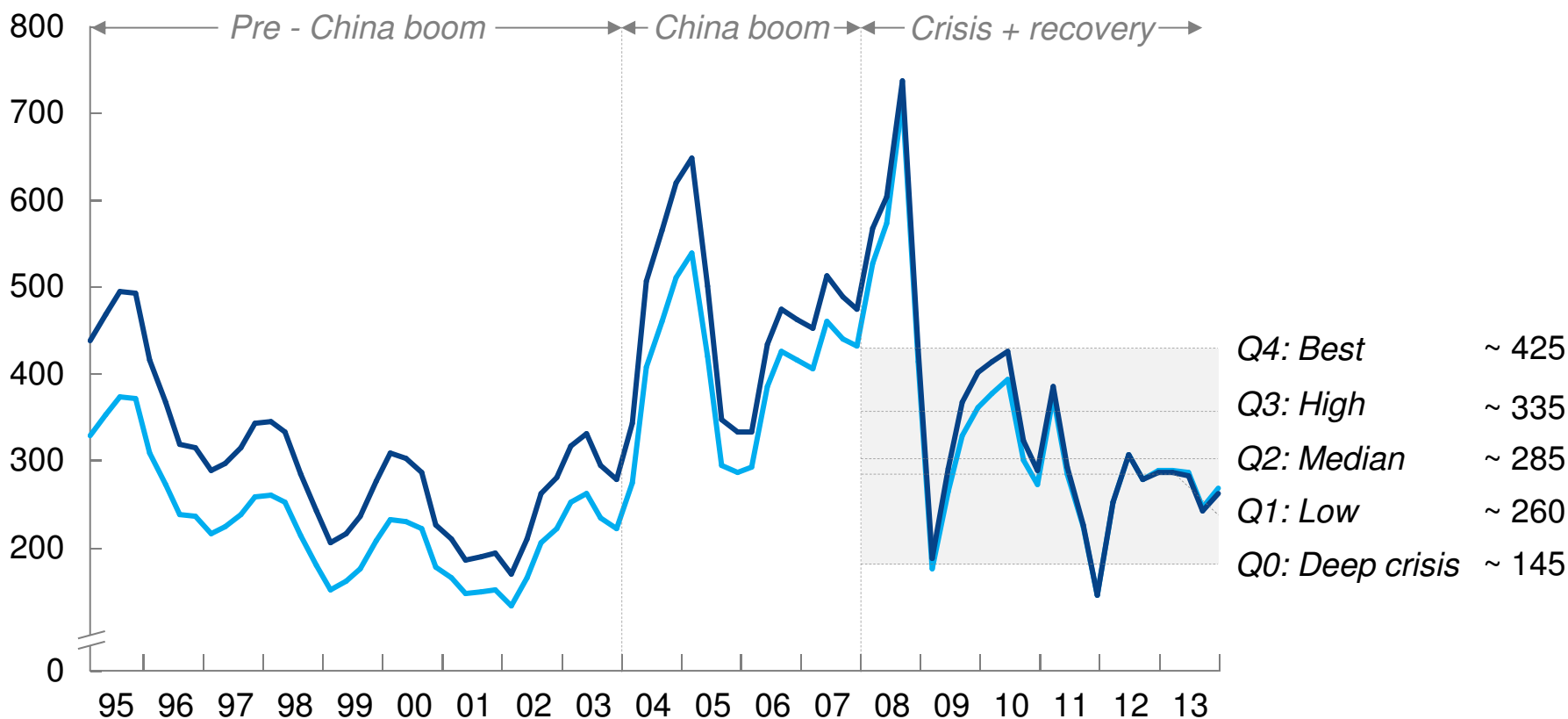
Evolution of margin over raw materials

EXAMPLE

- Nominal currency
- Real '12 currency

HRC margin-over-raw material – Europe

USD/metric ton



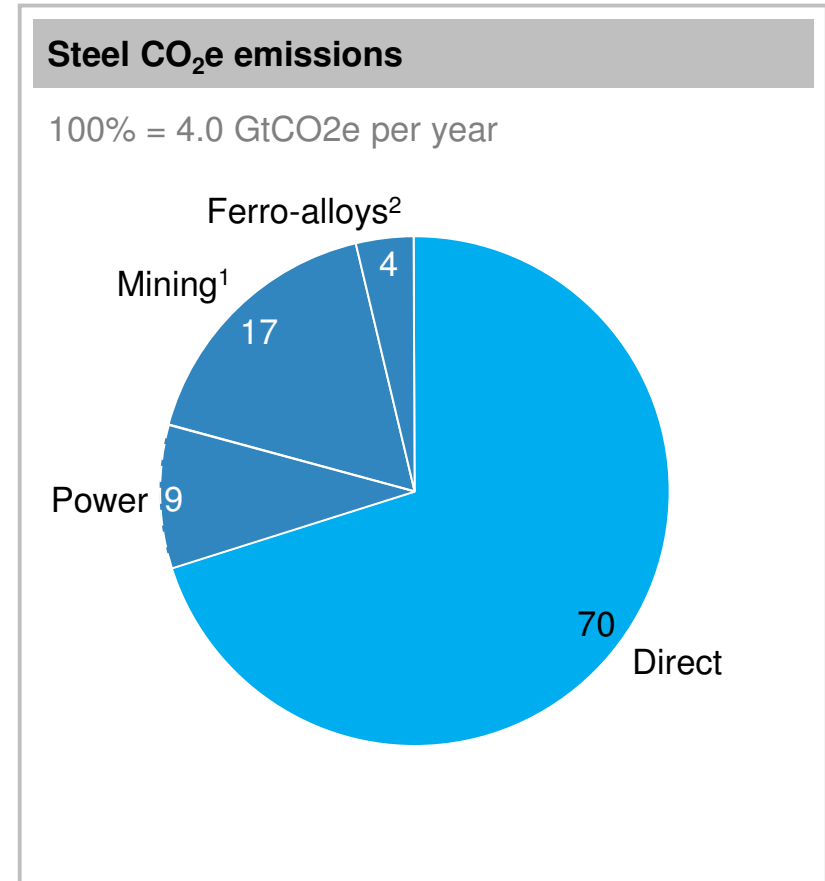
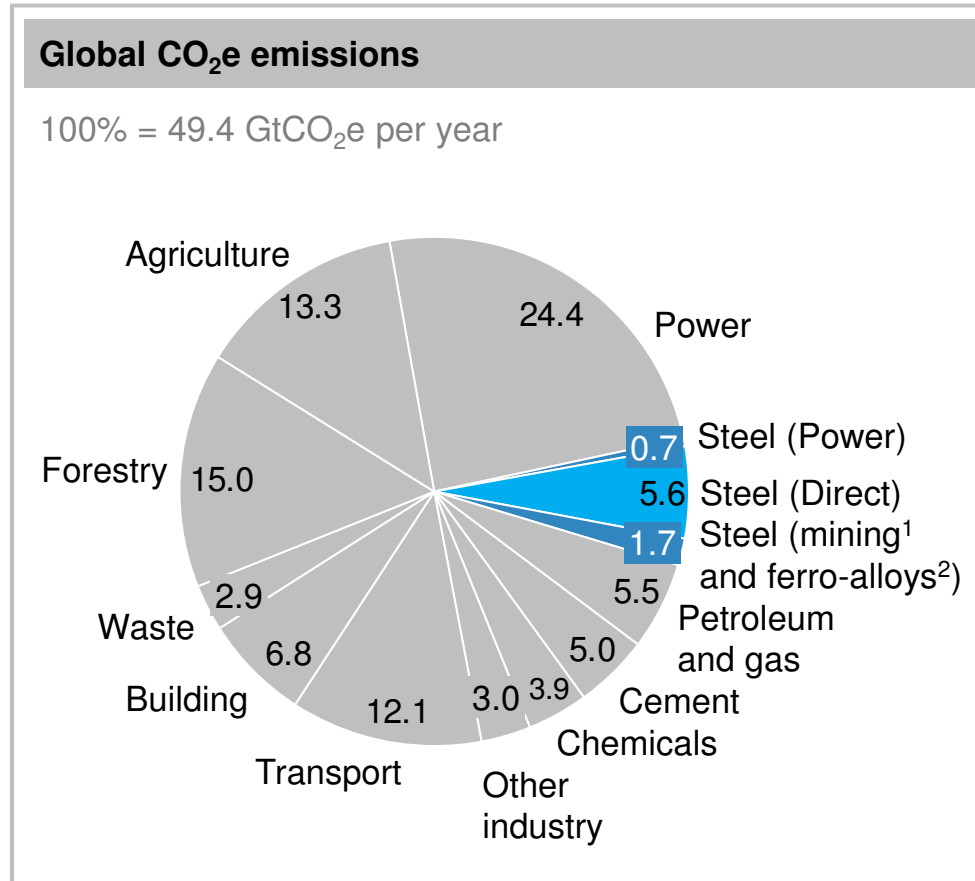
Challenges and opportunities going forward

- Solve structural overcapacity (globally and by product/region)
- Maximize "resource efficiency": make more products with less resources, maximize the end application value
 - Further improvements in steelmaking processes (energy efficiency, labor productivity, technological breakthroughs)
 - Steel abating its own CO2 and helping other sectors to abate CO2
 - Key role in the "circular" economy: importance of steel recycling, preparing for a future with a large scrap reserve
 - Technology innovation, reducing the needs for capital
 - UHSS for more energy-efficient applications
- Avoid commoditization: create value for users, adapt pricing to real (complexity) costs and capture application "value in use"
- **Vision of steel remaining the most important material on the globe – supported by sound economics, innovation, and "resource efficiency"**

Baseline GHG emissions of the steel sector

Percent, 2010e

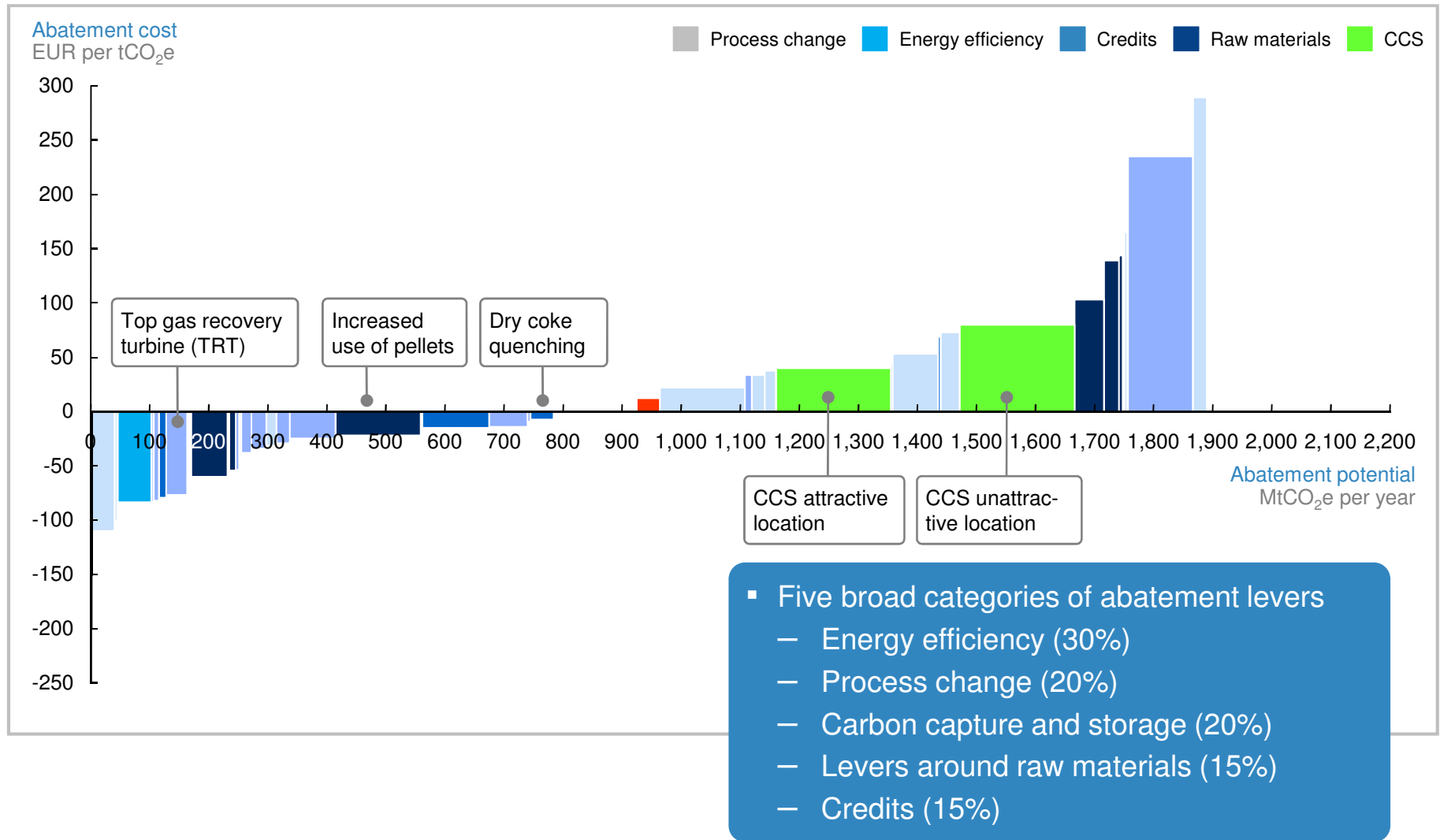
■ Direct emissions
■ Indirect emissions



1 Includes mining and beneficiation of iron ore, coal, limestone, and ferro-alloy ores
2 Production of Ni, FeCr, FeSi, FeMn, SiMn and Al consumed during steel production

Close to half of the abatement potential in the steel industry has a negative abatement cost

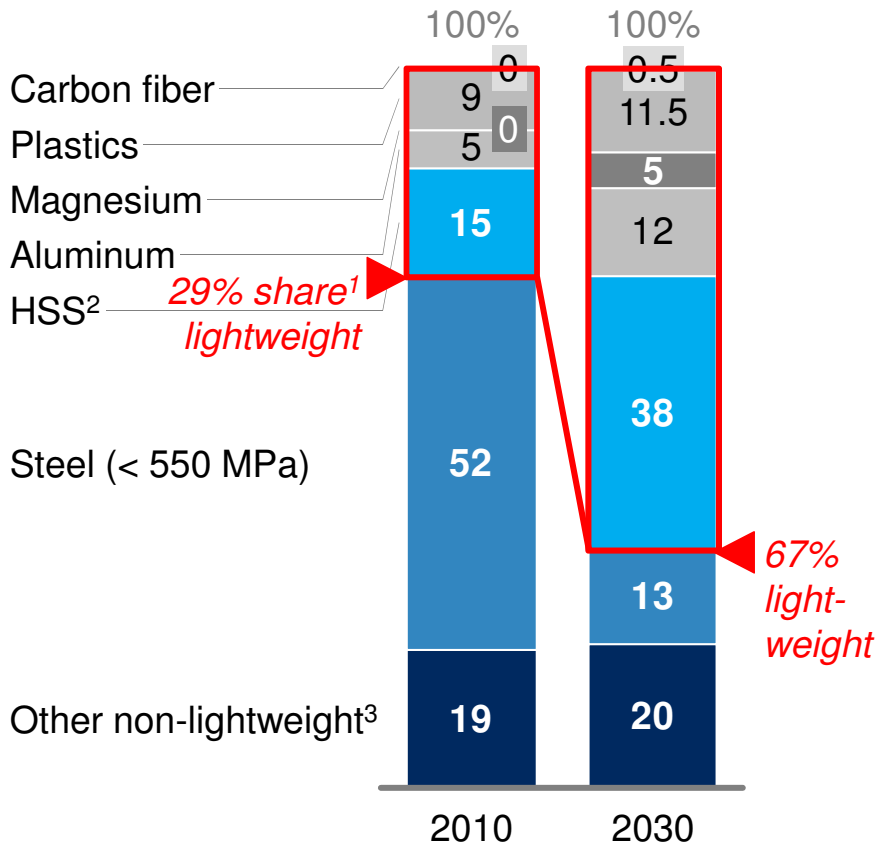
2007



Example material evolution in automotive

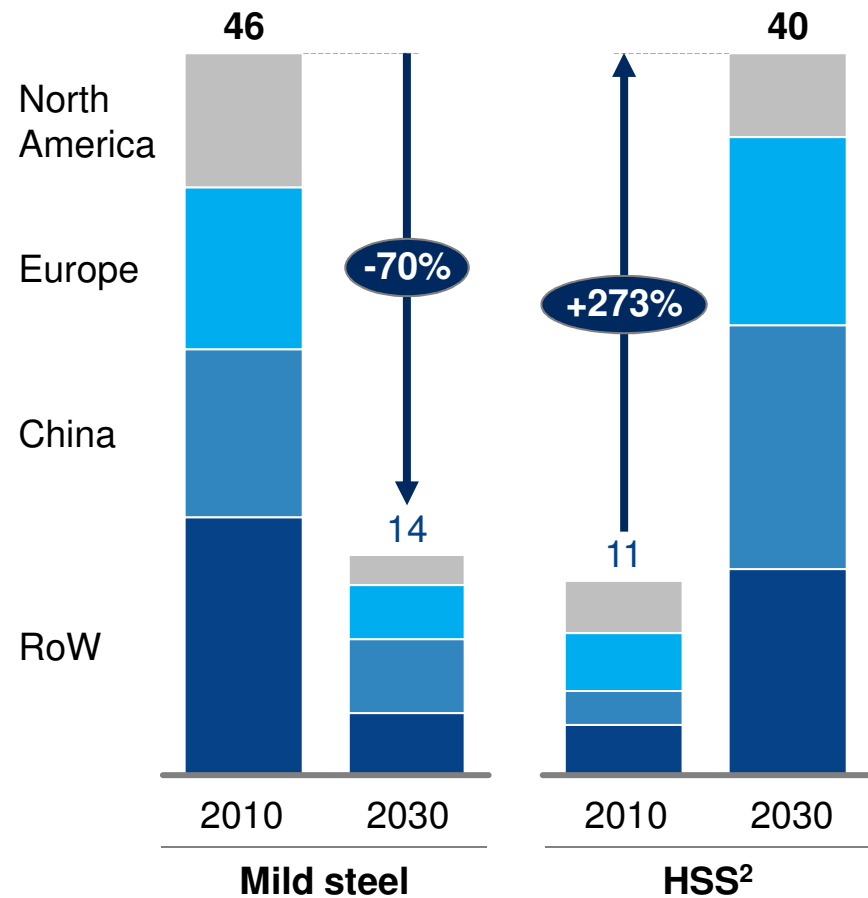
Material mix in automotive

Percent



Steel demand in automotive

Mt

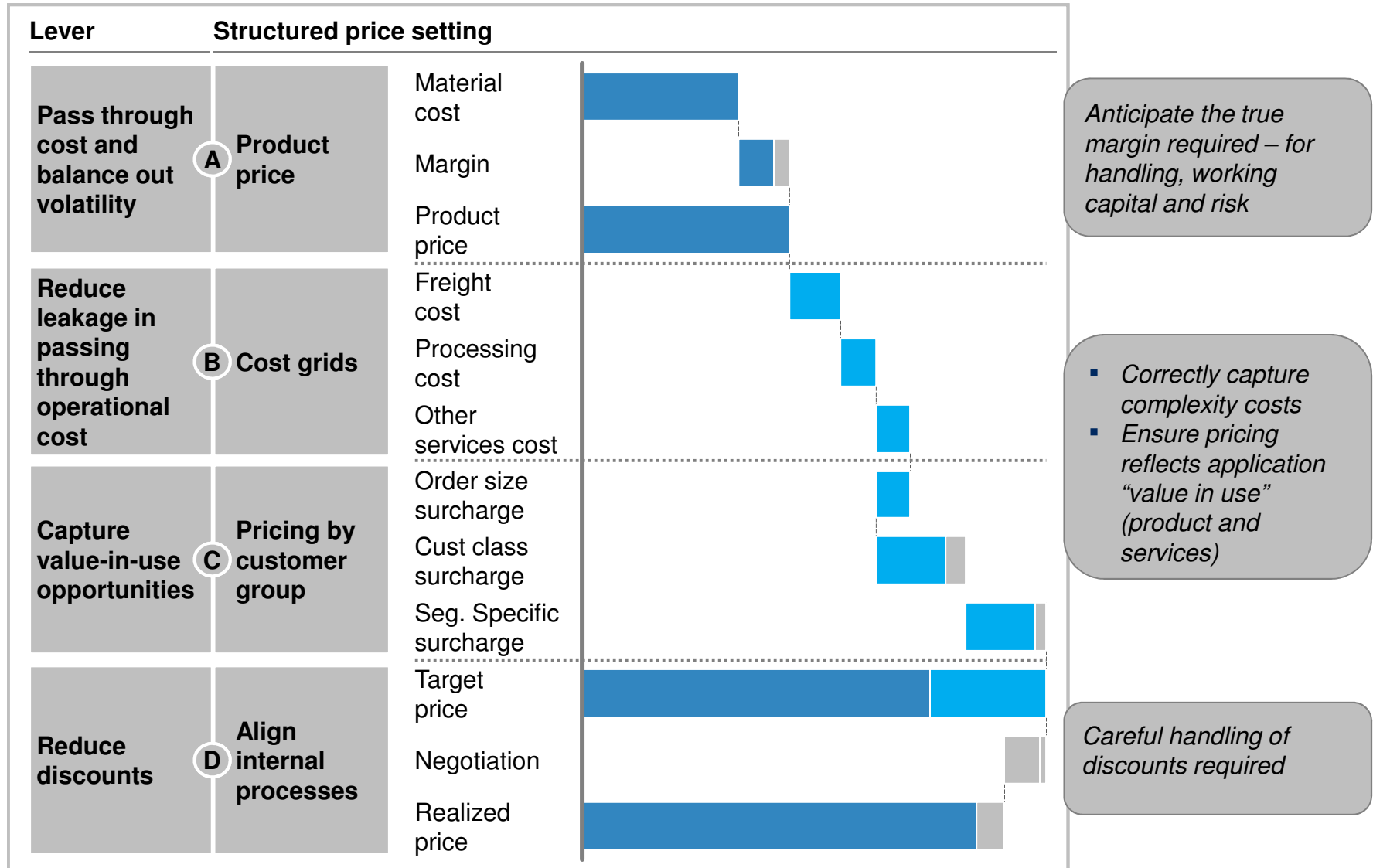


1 HSS, aluminum, magnesium, plastics, carbon fiber

2 High-strength steel (> 550 MPa)

3 Mainly other metals, glass, fluids, interior parts

Pricing should reflect true costs, segment specificities and application “value in use”



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