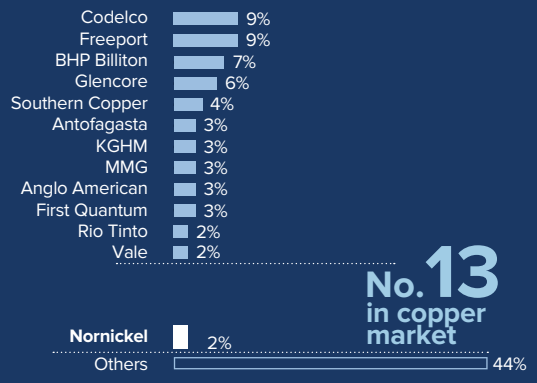
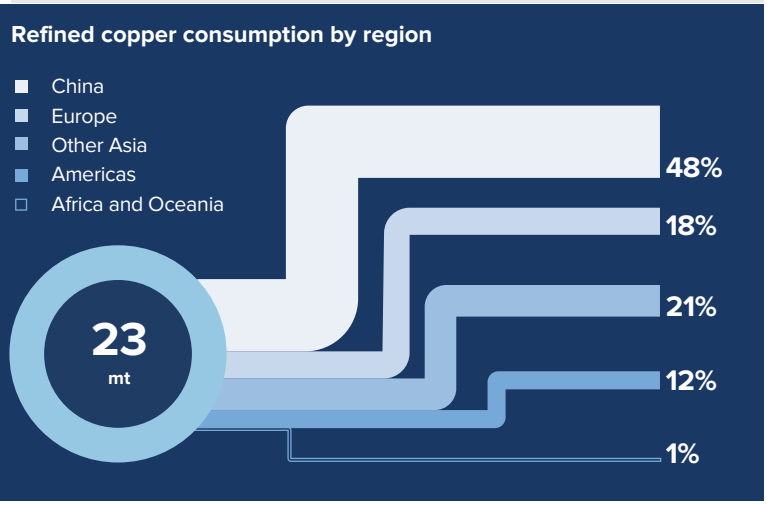
Copper
Cu





Source: Company data

Key trends in the copper market

Early 2017 saw a strike at the largest Chilean mine Escondida and a ban on copper concentrate exports from Indonesia driving copper prices up to USD 6,145 per tonne as at mid-February.

By early May, they plunged to USD 5,470 per tonne as a result of growing exchange inventories, data on decreased copper imports to China and the end of the strike, with the bounce-back starting in mid-May.

Despite the short-term correction in mid-September and late November, copper prices peaked at USD 7,216 per tonne by year-end, the highest since February 2014.

The price growth was supported by the analytical agencies forecasting the copper market deficit in 2018 due to reduced production along with a high demand for copper coming from the booming sector of electric vehicles and EV infrastructure, as well as the upward trend in the construction industry.

In 2017, the average copper price stood at USD 6,166 per tonne (up 27% y-o-y).

2017

The prices surged in the second half of the year with copper trading well above the cost curve due to a slump in production triggered by strikes along with a steady demand from the automotive and construction industries.

Outlook: neutral.

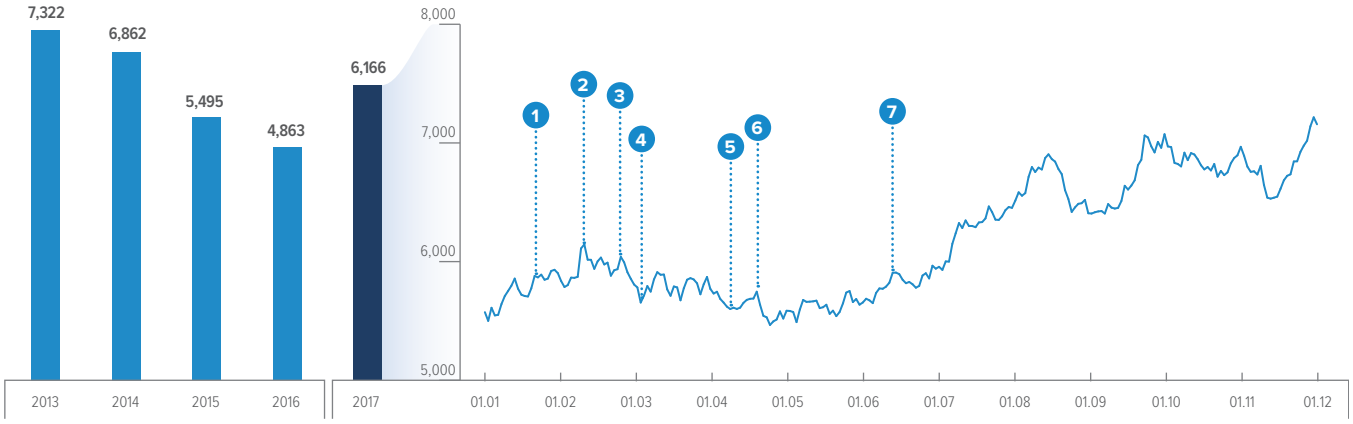
In the mid-term, the market will remain balanced; the upcoming wage talks in Chile and Peru may lead to a short-term uptick in copper prices.

Market balance

In 2017, the refined copper market that had been somewhat oversupplied for the past six years moved into a slight deficit. It stood at as little as 0.2% of the total market volume, or 50 kt vs a 220 kt surplus in 2016.

Total exchange warehouse stocks remained virtually unchanged from late 2016 at 544 kt (548 kt as at the end of 2016), or nine days of global consumption, with off-exchange inventories going slightly down.

Key industry developments and copper price // USD/t



Source: LME (settlement)

1. Outset of a strike at the Escondida mine;
2. Ban on the concentrate exports from Indonesia;
3. Strike at the Cerro Verde mine (Peru);
4. End of a strike at the Escondida mine;
5. Permit to export copper from Indonesia issued to Freeport;
6. Data on production cuts by BHP and Anglo American;
7. WBMS reporting the market's shift to a deficit.

Surplus/deficit in the copper market // kt

Source: Company data

+27%

6,166
USD per tonne
the average copper price in 2017

7,216
USD
copper prices peaked by year-end, the highest since February 2014

Consumption

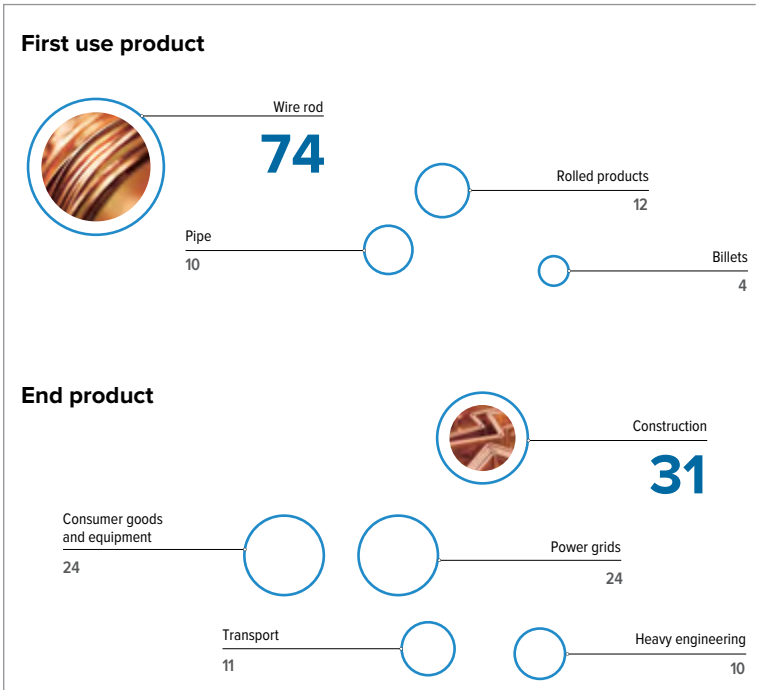
Given its high electrical and thermal conductivity, ductility and corrosion resistance, copper is widely used in various industries. Some three quarters of refined copper produced globally are used for manufacturing electrical conductors, including various types of cable and wire. Key copper-consuming industries include construction, electrical and electronic equipment manufacturing, power supply, transport, engineering, machine building and consumer goods production.

In 2017, global consumption of refined copper totalled 23.0 mt (up 2.0%, or 0.46 mt y-o-y), primarily owing to stronger demand from cable and wire manufacturers. Consumption in pipe, flat rolled products and billet production segments saw moderate growth.

China remains the key copper consumer globally, with its market share reaching 48% in 2017 due to the demand growth of 3.2%, or 0.3 mt. During the year, it kept cutting imports of refined copper while bringing in more copper feedstock. In 2017, Chinese refined copper imports dropped by 5% to 4.7 mt, while copper concentrate and scrap imports went up by 2% and 6% to 17.4 mt and 3.6 mt, respectively. China's growing consumption needs were mainly met through the local production ramp-up.

The demand for copper in developed economies saw only a slight increase in 2017, with Europe up (the Company's key market for copper cathodes) by 0.2%, North America by 0.7%, and Asia (excluding China) by 2.3%. Russian domestic copper cathode consumption in 2017 was moderately down.

Refined copper consumption by industry // %

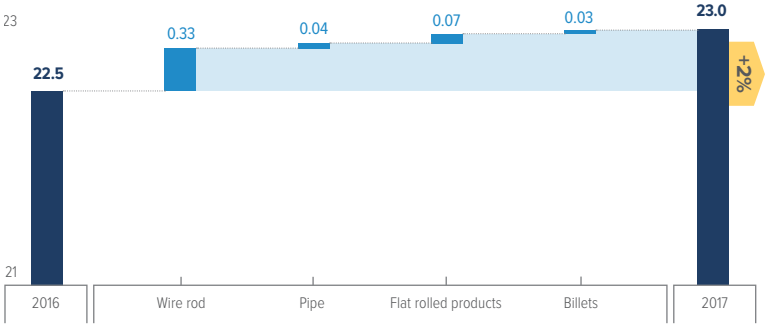


Source: Company data, Wood Mackenzie

Production

In 2017, global production of refined copper increased by 0.8%, or 0.19 mt, compared to 2016, totalling 22.9 mt. China remains the key driver behind that growth, with the national government firmly committed to the expansion of domestic smelting and refining capacities. In 2017, refined copper production in China grew by 8% to 8.9 mt, while its share in global output was 36%. Only 20% of Chinese production is local extraction, with another 80% coming from imported copper concentrates and scrap.

Changes in refined copper consumption in 2017 by industry // mt



Source: Company data, Wood Mackenzie

+2.0%

23.0 mt

total global consumption of refined copper in 2017

In the rest of Asia (excluding China), production growth was 1.4% (going slightly up in India and South Korea along with a slump in Japan). In North America, it shrank by 5.8% (marginally up in Mexico and down in the USA and Canada) and in South America – by 8.6% due to lower output in Chile. In Europe, copper production soared by 4.6% with Germany, Bulgaria and Sweden acting as the main contributors. According to preliminary estimates, Russia saw its production grow by 4% in 2017 after a 2% drop in 2016.

In 2017, global copper mine production slipped by 1.5% to 19.8 mt.

Some 3.1 mt of refined copper was produced from accumulated concentrate stockpiles and scrap on the back of higher scarp collection driven by higher copper prices.

The decline in copper production came as a result of Chilean strikes and technical issues experienced by the US producers.

In Peru, production was below the expectations due to strikes at the Cerro Verde, Cuajone and Toquepala mines in early 2017. However, higher copper output at the new Las Bambas mine operated by China's MMG drove Peruvian production up by 3%.

China, which is currently developing smaller mines, saw its production grow by 6% to 1.5 mt. In Kazakhstan, commissioning of the new Bozshakol and Aktogay mines by KAZ Minerals drove the output up by 15%. A 4% growth in African production was mainly backed by Kolwezi mine in the Democratic Republic of the Congo and Sentinel mine in Zambia.

Chile, the top global supplier of copper, saw a drop in production due to a 1.5-month strike at BHP's Escondida, the world's largest copper mine, causing over 100 kt of production losses from February to March, coupled with lower output by the state-owned Codelco driven by declining copper content at its oldest fields.

In North America, production dropped by 4% due to some technical issues at the US and Canadian mines. Australia reported reduced output at the Mount Isa and Olympic Dam mines. Indonesia saw its copper output shrink by 7% following a ban on copper concentrate exports at the beginning of 2017, which made Freeport limit its operations at the Grasberg mine.

Russian copper production grew marginally in 2017.

The actual refined copper production was above the analyst forecasts issued early in 2017 thanks to the production surge in the second half of the year. It was also backed by the increased use of scrap. At the same time, consumption growth was slightly above the expectations driving the global deficit down by 0.1 mt as compared to the initial estimates.

–1.5%

19.8 mt

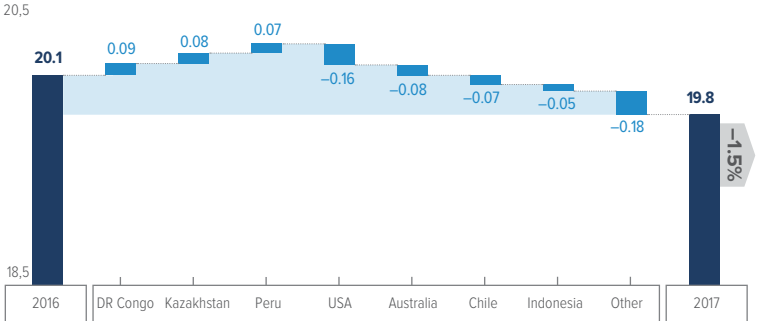
global copper mine production in 2017

+0.8%

22.9 mt

refined copper production in 2017

Copper production // mt



Source: Company data, Wood Mackenzie