International Copper Study Group

Copper Market Forecast 2017/2018

The International Copper Study Group (ICSG) met in Lisbon, Portugal on 27-28 April 2017. Government delegates and industry advisors from most of the world’s leading copper producing and using countries met to discuss key issues affecting the global copper market. In the meeting of the Statistical Committee, the ICSG view of the world balance of refined copper production and use was developed.

After growth of almost 6% in 2016, world mine production after adjusting for historical disruption factors, is expected to decline by 1% in 2017 and remain essentially unchanged in 2018:

- World mine production increased strongly in 2016 benefitting from new and expanded capacity brought on stream mainly in Mexico and Peru and the low frequency of supply disruptions due to strikes, accidents or adverse weather conditions.
- Lack of significant output from new projects or expansions, contrary to what happened in 2016, and reduced output from some SX-EW mines will impact world mine production growth rates in 2017 and 2018.
- Furthermore, 2017 production growth is also impacted by the significant supply disruptions that occurred in the 1st quarter of the year notably in Chile, Indonesia and Peru.
- While world concentrate production is expected to remain essentially unchanged in 2017, an anticipated decline of around 5% in SX-EW output will lead to an overall decline in world mine production of around 1%.
- Production in Chile and Peru, the world’s biggest copper mine producers, is only expected to present higher growth in 2018.

World refined production is expected to increase by around 2% in 2017 with lower growth of about 1.5% expected for 2018:

- In 2017, although a 2.5% growth is expected in electrolytic refined production from concentrates, and 5% growth in secondary (from scrap) refined production, world refined production growth will be partially offset by an anticipated decline of 5% in SX-EW output.
- In 2018, although world secondary refined production is expected to increase and SX-EW output to level off, it is anticipated that growth in electrolytic refined production might be lower constrained by the availability of concentrate.
- Improved availability of scrap should support growth in secondary refined production after a decline in 2016.
- China will remain the biggest contributor to world refined production growth in 2017 and 2018.
- World ex-China refined production is expected to remain essentially unchanged in 2017 (impact of maintenance/lower SX-EW at major producing countries), but recovering in 2018.

World apparent refined usage is expected to increase by around 2% in 2017 and 2018:

- Sustained growth in copper demand is expected to continue because copper is essential to economic activity and even more so to the modern technological society. Infrastructural development in major countries like China and India will continue to sustain growth in copper demand.
- Improvement is anticipated for the world economy for 2017 and 2018 which, although modest, should support copper demand growth.
- Better prospects for global and Chinese economies as compared to last October led us to revise upwards 2017 world apparent refined usage growth from 1% to 2% with 2018 growth remaining essentially unchanged.
- However it is expected that improved scrap supply might constrain world refined copper usage growth globally.
- China will remain the biggest contributor to world refined usage growth in copper usage. Apparent demand in China is expected to increase by around 2.5%, although underlying “real” demand growth in China is estimated by others at around 3.5%. Chinese copper demand growth is expected to be lower in 2018.
- After a decline in 2015, and practically no growth in 2016, we may see an improvement in world ex-China usage growth in 2017 and 2018.

World refined copper balance projections indicate a deficit of about 150,000 t for 2017 and 170,000 t for 2018:

- ICSG recognizes that global market balances can vary from those projected owing to numerous factors that could alter projections for both production and usage. In this context it can be noted that actual market balance outcomes have on recent occasions deviated significantly from ICSG market balance forecasts due to unforeseen developments.
- In developing its global market balance, ICSG uses an apparent demand calculation for China that does not take into account changes in unreported stocks [State Reserve Bureau (SRB), producer, consumer, merchant/trader, bonded]. To facilitate global market analysis, however, an additional line item—Refined World Balance Adjusted for Chinese Bonded Stock Changes—is included in the table below that adjusts the world refined copper balance based on an average estimate of changes in unreported inventories provided by three consultants with expertise in China’s copper market.
- Current ICSG projections are for a deficit of about 150,000 metric tonnes (t) in 2017, and about 170,000 t in 2018. This compares with a surplus of 160,000 t and a deficit of 100,000 t for 2017 and 2018, respectively, forecast at our October 2016 meeting. The change is due to stronger than previously anticipated growth in refined copper usage, mainly this year supported by improved global economic outlook.

Next Meetings of ICSG

The next Meetings of the Study Group will be held in Lisbon, Portugal in the period 23-25 October 2017.

(World Refined Copper Usage and Supply Forecast table on next page)
## World Refined Copper Usage and Supply Forecast

Thousand metric tonnes, copper

### FORECAST TO 2018

<table>
<thead>
<tr>
<th>REGIONS</th>
<th>MINE PRODUCTION</th>
<th>REFINED PRODUCTION</th>
<th>REFINED USAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>1,823</td>
<td>1,875</td>
<td>2,015</td>
</tr>
<tr>
<td>N.America</td>
<td>2,923</td>
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<td>2,855</td>
</tr>
<tr>
<td>Latin America</td>
<td>8,350</td>
<td>8,428</td>
<td>8,903</td>
</tr>
<tr>
<td>Asean-10 / Oceania</td>
<td>2,096</td>
<td>2,174</td>
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<tr>
<td>Asia ex Asean/CIS</td>
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<td>2,606</td>
<td>2,716</td>
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<tr>
<td>Asia-CIS</td>
<td>684</td>
<td>768</td>
<td>813</td>
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<tr>
<td>EU</td>
<td>880</td>
<td>889</td>
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<tr>
<td>Europe Others</td>
<td>835</td>
<td>864</td>
<td>889</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20,216</td>
<td>20,398</td>
<td>21,241</td>
</tr>
<tr>
<td><strong>World adjusted 1/ 2/</strong></td>
<td>20,216</td>
<td>20,041</td>
<td>20,029</td>
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<tr>
<td>% change</td>
<td>5.7%</td>
<td>-0.9%</td>
<td>-0.1%</td>
</tr>
</tbody>
</table>

World Refined Balance (China apparent usage basis) -120 -147 -169

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1/ Based on a formula for the difference between the projected copper availability in concentrates and the projected use in primary electrolytic refined production.

2/ Allowance for supply disruptions based on average ICSG forecast deviations for previous 5 years.