Metal Bulletin
Special Report

Cesco Week 2017
Copper insights from Santiago

Produced by Metal Bulletin's global team of journalists

Contents

Metal Bulletin's journalists were in Santiago last week for CESCO Copper Week and have produced a series of news stories and in-depth articles on the latest developments in the copper industry.

More positive mood for copper but cathode remains ugly duckling

PERRINE FAYE

There was a definite improvement in sentiment at this year's Cesco copper week in Chile, with more market participants seeing upside price potential amid tightening supply, but many still erred on the side of caution.

It is worth remembering just how bearish Cesco Week 2016 was. The LME three-month copper price had fallen to around $4,750 per tonne, having been as low as $4,320 at the start of the year. And with China's demand growth rapidly slowing and mines operating with the lowest disruption rate in years, analysts gave very bearish forecasts – Goldman Sachs was a leading bear, predicting an average price of $4,000 per tonne for the whole of 2016.

A year later at Cesco Week 2017, the picture is brighter if not overly bullish. The three-month price was above $5,900 per tonne last week, driven by a host of supply disruptions in Indonesia, Chile and Peru, which have removed some 200,000 tonnes of anticipated production from the market this year.

The price has since eased back to $5,780 per tonne, mainly due to rising inventories and the resolution of the strikes at Escondida and Cerro Verde and the temporary export agreement for Freeport's Indonesian subsidiary.

But analysts forecast a strong second quarter – the usual seasonal peak for copper demand – and higher prices ahead. Goldman Sachs, for instance, foresees a rally to $6,200 per tonne over the next three months while Metal Bulletin Research expects a high of $6,400 and an average of $5,750 this quarter. Bank of America Merrill Lynch predicts a $6,500 average.

It is clear, however, that support is coming from the tightness in the concentrates market rather than in the refined cathode market, which is expected to be more or less balanced this year.

This is highlighted by the fact that refined copper premiums have dropped to four-and-a-half-year lows in Shanghai to $35-50 per tonne cif on a lack of spot demand, falling financing interest and ample supply availability, including of copper scrap.

"Trading volumes in China are down by 30-40% this year – there isn't much opportunity in arbitrage trade and interest in cathodes for financing purposes," a Chinese trader told Metal Bulletin last week, noting the increase in Chinese exports.

By contrast, copper treatment and refining charges (TC/RCs), which track the value of concentrates, have surged to the widest discount to the LME price in four years just above $70 per tonne/7 cents per lb, with spot deals heard in the $60s/6 cents.

Many in the copper industry anticipate the annual TC/RC benchmark to fall below this year's level of $92.5/9.25 cents in 2018 to reflect the tightness in supply and the growth in Chinese imports.

"Overall copper demand in China will grow but it will be mainly scrap and concentrates rather than cathodes," another Chinese trader said last week.

"There is a positive view now, which is a welcome change," an executive at the world's largest refined copper producer, Codelco, also said. But he is "not expecting to see a price of $7,000 per tonne this year" even if Chinese demand grows by more than 3%, he added.

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Freeport-McMoRan out of survival mode after cutting debt – ceo

ANDREA HOTTER

Freeport-McMoRan has turned a corner after a tricky period last year, with reduced debt and a more streamlined business taking it firmly out of survival mode, cee Richard Adkerson said.

In an interview with Metal Bulletin, he said that there was a lot of scepticism in the market about the ability of the company to meet its debt reduction targets.

"Well, we did it," Adkerson said. "Going into 2016 with the amount of debt that we had, there was a real concern in the investment community about Freeport's ability to survive, and the first quarter of 2016 was a very tough time for commodities. We were trying to sell our oil and gas assets and it was a difficult time to initiate that."

Adkerson said the company surprised people in achieving fair values for its asset sales, which included the sale of an interest in Morenci in the USA to Sumitomo and the sale of its interest in Tenke Fungurume in the Democratic Republic of Congo to China Molybdenum.

Through 2015 and 2016, Freeport also raised $4.5 billion in equity in the public markets in a series of at the market offerings.

"We targeted debt reduction of $5-10 billion over a two-year period. By the end of 2016, we had reduced debt by $8 billion and we have a clear-cut path to getting well over $10 billion. Indonesia is having an impact on that but it's not a question of survival any more," Adkerson said.

"We got what we wanted to achieve from the debt reduction programme, which was to end up with a company with an attractive set of assets in order to remain a leader in the global copper business and to have opportunity for long-term growth, and we did that," he noted.


Richard Adkerson

"We have a great business in north America and south America. It's performing well. We have significant reserves and significant resources beyond reserves that would allow us to do brownfield-type expansion projects over a very long period of time and in a very low-risk fashion, when market conditions warrant doing that," he told Metal Bulletin.

"We're doing planning for future growth, but we're not looking to start spending capital on expansion projects until the market has a clearer outlook," he added.

According to Adkerson, the debt reduction programme plus asset sales have meant that the success of Cerro Verde, which ramped up in routine fashion in its targeted capital spending budget of $4.6 billion, was somewhat overlooked.

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"Because of everything else that was going on, Cerro Verde didn't get the love or attention it deserved – it's a great asset for our company going forward. It would have been a tragedy if we had been forced to sell that asset to meet our debt targets. When we started out, I said that all of our assets were potentially for sale," he said.

Copper market

The recent and relatively unexpected recovery in the copper price has also been beneficial to generating cash flows to reduce Freeport's debt further.

Supply-side issues helped this recovery, including an ongoing inability to export at the company's own Grasberg mine in Indonesia as well as a short strike at its Cerro Verde mine in Peru, but China had performed better than people expected, Adkerson said.

"The business environment in the first quarter of 2016 was very sceptical about China, but its economy has ticked up, and the economies of the USA and Europe have improved, as has that of Japan. There is a demand factor behind the copper strength," he told Metal Bulletin.

"We don't try to predict near term copper price movements, we prepare ourselves for different scenarios, but long range we're very positive about the business we're in"

"The supply-side interruptions were typical of the industry for years, and we had a brief period when they were at lower than historical levels. A positive outlook for global copper demand over time amid the absence of investment in new mines, limited availability of new projects and an ongoing decline in grades from existing mines all add up to a long-term favourable outlook for the copper business – and that's what our company's strategy is built around," Adkerson said.

"and positive about where our company is situated there, with our reserves and resources and a great team of people we have."

The current copper market is relatively balanced, with deficits forecast to come, he noted.

"We never reached the level of surpluses that people were anticipating going back in history. The predictions for major surpluses in the 2015, 2016, 2017 timeframe didn't materialise for a series of reasons so now, as we go forward, the market is balanced or in a small surplus or deficit – the margin is small," Adkerson said.

"Most people feel that deficits of size will be coming in the next relatively short period of time, but there are global uncertainties affecting economic and political issues around the world today that leave you with a question mark about that. As a result of that, you don't see companies in our industry rushing to invest in major projects. I don't see that changing in the immediate future."

Deal allowing Grasberg exports 'close'

Freeport-McMoRan is on the verge of securing an agreement that will allow it to resume exports from Indonesia while it continues to work towards a more final deal with the government.

The agreement would see Freeport's Indonesian subsidiary, PT Freeport Indonesia (PTFI), retain its existing contract of work (CoW) while thrashing out the details of a stability agreement which would then lead to the conversion of its contract to a special mining licence called an IUPK.

"We believe that we're on the verge of having an agreement that is a positive step for the government and for us which would allow us to resume exports for a period of time," Adkerson said.

"During that period, our CoW would stay in force and we have agreed that we would convert to an IUPK at the time when we have a mutually agreeable stability agreement that would preserve our rights under the CoW," he added.

This would be almost a return to the situation prior to Indonesia's actions in January, which the government is being required to justify on a legal basis. The key difference is that there is now acceptance of Freeport's requirement of a stability agreement before it converts its CoW to an IUPK.

Freeport has been unable to export concentrates from the country since mid-January, when its licence to do so expired, and has been forced to cut production at PTFI's Grasberg mine as a result. It is still not exporting to customers outside Indonesia, Adkerson confirmed.

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"It's a positive step and we were pleased to see that the government was willing to take this step because it's in everybody's best interest for us to export," Adkerson said.

"Failure to export costs the government taxes and royalties, it affects revenues for Freeport and it requires us to adjust our operations to the level where we are only dealing with shipments to PT Smelting in Gresik, which can absorb roughly 40% of PTFI's production," he added.

Indonesia's Energy and Mineral Resources Ministry secretary-general Teguh Pamudji told reporters on Tuesday April 4 that the country had granted PT Freeport, majority owner and operator at Grasberg mine, an eight-month export licence. However, Adkerson told Metal Bulletin that discussions were ongoing.

If the agreement is signed, the company will start to ship concentrates stored in its warehouse facilities to international customers and gradually ramp-up production at Grasberg.

"We had an issue early in January and February where PT Smelting wasn't operating due to a strike, although it has resumed operations now. During this period we had no shipments so our inventory facilities at PTFI were filled with concentrate and we had to shut our mill down as we had no place to store concentrate," Adkerson said.

"I believe it's in everyone's best interests to find a mutually acceptable agreement. But there are some challenging issues"

"Now with PT Smelting having resumed operations, we've started shipments from PTFI to PT Smelting, and with this agreement we would arrange for shipments to our export customers. That would come out of our inventory and then we would take steps to increase production at PTFI," he added.

Adkerson declined to provide specific details of the agreement until it is completed. "We had hoped it would be done but the formal action that is required by the government has not yet been completed," he noted.

The company has said that the reduction of concentrate output at Grasberg would result in the loss of around 70 million lb of copper and 100,000 oz of gold each month. Adkerson said the company would update this figure in the near future.

Adkerson said the company planned to enter into longer-term negotiations regarding the stability agreement with the government in good faith although acknowledged the challenges ahead.

"We're going to go into these negotiations – which both parties will want to initiate quickly and immediately – with good faith, and I believe the government will have good faith too. I believe it's in everyone's best interests to find a mutually acceptable agreement. But there are some challenging issues," he told Metal Bulletin.

"If we aren't able to reach a longer-term agreement, our hope would be that the government would continue with the CoW, and the CoW provides explicitly that we have the right to export without restrictions," he said.

If the situation was forced to go to international arbitration, the process is defined under the terms of the contract; a panel would be selected and it then decides how to proceed.

Key issues

Adkerson said there are several main areas in the stability agreement that require work. The first of these is the provision in the CoW allowing PTFI the right to two ten-year extensions beyond 2021, on the same terms as the existing contract.

"The government in October 2015 issued a letter providing us an assurance, a guarantee, that the contract would be extended with the same levels of assurance for legal and fiscal matters that are in the existing contract," he noted.

There is also a new requirement introduced by the government providing for divestiture of 51% of its stake in PTFI, in which it currently holds a 90.64% interest.

"Our contract has no divestiture obligations and in fact we have a letter from the government from the 1990s acknowledging this. We'd have to reconcile this," Adkerson said.

"When we signed a memorandum of understanding (MoU) with the government in 2014, we said we would be willing to divest up to 30% if the government granted us our

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extension. A key factor in any divestiture that we agreed to would be that it would have to be at fair market value of the business," he added.

There is also a requirement agreed in the same 2014 MoU to develop a smelter, with financial incentives provided by the government which have not been specified. This will also form part of the longer-term discussions.

Current market conditions make investment in new smelting capacity broadly uneconomic, given the huge oversupply of smelting capacity, particularly in China, and the consequent decline in treatment charges.

In the backdrop of the Indonesian negotiations, there is a two-year labour contract due to expire in September.

"We have had to reduce our workforce – there is a process going on as a result of the restrictions on exports – but we also are in the process of suspending our capital projects, so employment is going to be dropping and that's going to cast a different dynamic to the labour negotiations that is an uncertainty," Adkerson added.

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Ample copper scrap supply affecting cathode demand, premiums – Codelco

PERRINE FAYE

The increased availability of copper scrap at large discounts since late 2016 has dampened demand for cathodes and prompted lower premiums, market participants said during Cesco Week.

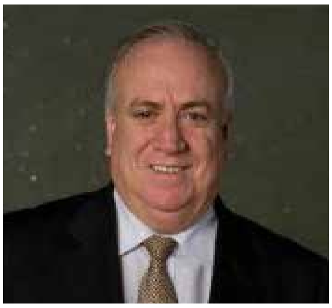
"The entrance of scrap in the market after prices went up in November pushed cathodes aside," Codelco senior commercial vp Rodrigo Toro told Metal Bulletin on Wednesday April 5 in Santiago, Chile.

Copper premiums have dropped to 4-1/2 year lows in Shanghai to $35-50 per tonne cif. This is mainly a response to the high availability of scrap and cathodes rather due to than a slowdown in demand, said Toro, who expects Chinese copper demand to grow by at least 3% this year.

Others have a lower estimate. For instance, Chinese trader Metal Challenge expects demand for cathodes in China to grow by only 1-2% this year, down from 4.1% in 2016 largely due to substitution by scrap.

China's scrap imports could increase by 5-6% this year from 3.34 million tonnes in 2016, which was down 8% from 2015 levels, according to Metal Challenge. "Scrap will substitute cathodes in consumption, maybe up to 100,000 tonnes or more of metal content in 2017," it said.

Net imports of cathodes into China may fall to 2.8 million tonnes from 3.2 million in 2016, it added.



Rodrigo Toro

The commercial terms for No.2 copper scrap have been competitive against cathodes and blister. Recent quotations for No. 2 copper birch cliff were about 87% of the LME three-month price, or 27 cents per lb below Comex, having dropped as low as 82.5% at one point, noted Michael Lion of Lion Consulting Asia Ltd.

They were at around 89% of LME prices - or 31 cents below Comex prices – in November last year and 92% and 21 cents a month prior.

"The cathodes market is not strong at the moment – there's a lot of scrap at hefty discounts," a copper consumer said on the sidelines of Cesco Week.

Some 150,000-200,000 tonnes of scrap had been put in storage last year when copper prices were low but have since been released into the market, he added.

The LME three-month prices was last at $5,924 per tonne on Wednesday, having climbed above $6,200 in February and dropped as low as $4,320 per tonne at the start of 2016.

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Copper moving into small deficit this year – Rio Tinto

ANDREA HOTTER

The copper market has rebalanced amid a decline in prices and is moving into a small deficit this year, according to the ceo of copper and diamonds at UK-listed miner Rio Tinto.

Arnaud Soirat said that there is limited prospect of an increase to supply over the coming years, and that mine supply may reach a plateau as a result.

"In the last 18 months the industry has seen around 700,000-800,000 tonnes of price-related cutbacks and we now see the market moving into a small deficit this year. Over the next three to five years there are limited new greenfield projects expected to come online," Soirat told Metal Bulletin.

"This – combined with grade decline and end of life closures over the next few years – means we see overall mine supply potentially plateauing before the end of the decade. With continued modest growth in demand, a substantial supply gap may emerge by the beginning of the next decade," he added.


Arnaud Soirat

This could result in higher prices, encouraging restarts of higher cost mine supply and incentivising new project capacity, Soirat said, speaking in Santiago, Chile, during the annual Cesco industry week.

Rio Tinto has a 30% stake in Escondida, which is managed by BHP Billiton and is the world's largest copper-producing mine. It also has a joint venture with Freeport-McMoRan for a 40% share of production above specific levels at the Grasberg mine in Indonesia until 2021, and 40% of all production after 2021.

It also manages the Oyu Tolgoi mine in Mongolia, along with the operations of Kennecott Utah Copper in the USA as well as the Resolution Copper project in the US state of Arizona.

In the longer term, Soirat said that there is broad agreement that copper has continued upside ahead.

"Copper's long-term fundamentals are quite positive, and we expect to see further demand growth from emerging markets. The downturn in China, for example, seems to have plateaued. Most indicators have seen strong growth so far this year," he noted.

"Copper remains central to continued development in China, and demand from India, Southeast Asia and Africa will continue to rise over the next decade," he added.

At the same time, technology and macro demographic trends also favour copper. Soirat cited investment and upgrade in power grids, a major consumer of copper, will drive further demand in emerging markets.

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"Urbanisation on a massive scale continues to take place, driving infrastructure investment," he said.

"Consumer goods and new uses for copper such as renewable energy applications and electric vehicles will provide some demand upside, while medium- and long-term supply will be affected by attrition at existing assets and challenges of bringing new projects on line," he added.

Soirat was appointed head of copper and diamonds in June 2016 as part of a new organisational structure and management team reshuffle at Rio Tinto. He had previously been ceo of aluminium primary metal at the mining firm.

Copper demand outlook positive, supply gap emerging
Copper's demand outlook remains positive and a substantial supply gap may emerge given a backdrop of declining grades and ageing mines, Soirat said.

This supply gap may lead to the restart of previously idled higher-cost capacity, he said

Reiterating earlier comments that there have been up to 800,000 tonnes of price-related output cuts in the last 18 months, Soirat noted that copper is moving into a small deficit this year.

The copper industry faces similar challenges to aluminium, which also faced a deep down cycle, he said. Soirat was previously head of aluminium primary metal at Rio Tinto.

Demand growth in emerging economies is positive. The downturn in China appears to have plateaued, he said, and demand in India, Southeast Asia and Africa continues to grow.

Soirat also noted an increase in renewable energy applications for copper as well as rising consumption due to electric vehicles.

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China key to copper tightness as world faces 'Apocalypse Now' moment – Codelco

Supply issues have accelerated the tightening of the copper market but how much deeper this becomes will depend on Chinese demand growth, Oscar Landerretche, the chairman of state-owned Chilean miner Codelco, said.

All of this is taking place as the world faces a battle between supporters and opponents of free trade, which he likened to the film "Apocalypse Now."

"People hadn't expected the strike at Escondida to last too long, but along with the strike at Cerro Verde, the problems at Grasberg and the floods in Peru, everything combined to bring the tightening of the market forward," Landerretche told Metal Bulletin.

"I believe in 2018 we'll have a deficit for sure, and a market that is a close to balance deficit this year. It'll depend on how strong China is," he said.

Noting that Codelco's sales team feels that the market recovered in China in late 2016, Landerretche said the improvement was "not an exuberant recovery but a healthy one".

"My theory is it's a combination of two things. Firstly, a big push by China to electrify its economy and also its cars amid concerns about pollution. The other thing is that the big financial crisis that everyone was expecting to happen in China, hasn't happened. That means the housing and infrastructure market has been better than expected, and this pulls all construction-related commodities up," he said.

Landerretche said economists had underestimated the ability of China to achieve a transition without crisis, but that its authorities have in fact shown enormous and highly commendable skill in navigating the transition.

Oscar Landerretche

"That's created a source of stability for the world markets that wasn't expected. It's a big part of what's influencing the copper market now," he added.

Electric vehicles will be a key demand driver going forward, Landerretche noted, and most likely at an unexpectedly rapid speed, which will create a very substantial transformation in the way ground transportation is viewed.

'Apocalypse Now'

On the flipside, Brexit and the potential for more inward-focused trade policies in the USA and other nations have "increased uncertainty, which has put a risk premium on forward bets, he said.

"If the international risks hadn't increased, you would have seen much higher prices across all assets classes, including commodities. The risk scenario isn't going to go away soon," he added.

Likening the anti-globalisation movement that is gaining speed across many developed nations to the film "Apocalypse Now" – based on Joseph Conrad's "Heart of Darkness" – Landerretche said that the prospect of a move away from pro-trade policies in the long term would "amaze" him.

"It would amaze me if the pro-trade liberal axis of the USA, Canada, UK, Australia and New Zealand permanently stopped being pro-trade, free-market supporters. Maybe

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during an electoral cycle, but it's like in '*Apocalypse Now*' – the idea that normal people that live in normal civilized places every once in a while need to blow off the normality and become barbarians, so go deep into the jungle and do outrageous, horrible and cruel things," he told Metal Bulletin.

"When they get scared about what they're doing, they come back to normality. Part of me feels that Brexit, President Trump's policies, is American and British voters going into the heart of darkness. They'll have their horrible final moment and then go back and live a normal life again. I think there's some of that going on and I don't believe such a dramatic culture change has happened," he said.

"We're not going to promise enormous increases in our production but we do believe that what we're promising now is credible, and that's a very substantial change"

"I don't think we're going into a mercantilist trade war era. If anyone in charge of those countries actually dreams of that, there would be a host of institutions that would stop them," he added.

Overall, the effect of President Trump's policies on copper in the end would be positive if it is pro-business with reduced taxes and increased expenditure on infrastructure, Landerretche noted.

Codelco focused on core projects and stable debts
After outperforming expectations and returning to profit last year, Codelco is now focused on advancing its three key structural projects without increasing its debt, Landerretche said.

The goal for the coming years is for the company's debt to remain stable at around $14 billion, the level at which it stood when he became chairman, he said. As recently as 2010, Codelco's debt was around $4 billion.

"My objective, which is shared by the board and company ceo Nelson Pizarro, is to within a year have the same debt level that we received Codelco in. We can't solve the debt problem structurally until we get our projects online, and then we can pay down the debt – and it's a debt we should never have had because it's the result of not properly capitalising the company," Landerretche said.

Landerretche acknowledged that the current Chilean government under President Michelle Bachelet has "made a much larger effort than any previous government, but the problem is you can't ask the minister of finance to solve in two years a problem that was caused in 30 years".

He is an advocate for a structural financing law for Codelco that would see the company capitalised in the boom years but not in leaner times.

"A structural capitalization law would be a very responsible way of insulating the process of healing the finances of Codelco from the political cycle," he noted.

"What we can do now is to keep our debt checked. It's very satisfying that we've kept the debt in check while achieving all these other things," he noted, adding that this would not change if copper prices and market conditions remain at least stable and the company continues to be capitalized in the same manner.

The miner recently reported **a pretax profit of $500 million** for 2016, reversing a loss of $2.19 billion for the prior year.

Cost-cutting, projects
There is no "silver bullet" to help Codelco outperform expectations but a series of efforts is being co-ordinated by a new vice president for cost-cutting solely that is focused on reducing costs and improving productivity, Landerretche said.

"[We] were slightly above the average cash cost for large copper mining companies in Chile; now we're 11% below. Codelco has cut costs by 8-9% annually. The board is in cost-cutting mode," he added, noting that the goal is to move costs to the first quartile from the second quartile.

The improvement in copper price probably accounts for around 20% of the improved results; the remaining 80% is down to management efforts, Landerretche said. A key part of this is being realistic with targets.

"Under Pizarro, the company has very substantially streamlined its investment projects. The philosophy is that we need to keep Codelco with a substantial participation in the market for the next couple of decades," he said. "We're

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not going to promise enormous increases in our production but we do believe that what we're promising now is credible, and that's a very substantial change."

"We think that Codelco for the foreseeable future will be producing in the range of 1.6-1.8 million tonnes. That figure varies as projects come in and out," he added.

Instead of developing numerous projects at the same time, Codelco now plans to streamline its portfolio to concentrate on three and to run them in sequence. The first is Chuquicamata underground, then El Teniente and Andina; each has been substantially slimmed down as well.

According to Landerretche, the company's investment schedule from 2017 to 2023 is now $18 billion, down from $25 billion previously.

"Part of that is the sequentialising and another part is the slimming down. This means that we are promising to the country and market something which is realistic and which you actually believe in," he said.

These projects are the "ace up Codelco's sleeve" because if they are executed properly they will put the company in the first quartile, Landerretche noted.

"Then we would be happy to have higher copper prices but we won't need them. It is different for other companies which only have their existing operations and no future structural projects," he said.

"Some of our peers are operating projects that are close to the margin, although the current copper price has put a lot of operations in a more comfortable place"

"Some of our peers are operating projects that are close to the margin, although the current copper price has put a lot of operations in a more comfortable place," he added.

New approach to labour relations paying off, chairman says

Codelco has revamped its approach to labour relations and the new method is yielding results, Landerretche said.

In a country that is typically host to a number of strikes at mining operations, including **most recently at Escondida**, the company has seen just one five-day strike in almost two years.

"Codelco has a very different approach to labour negotiations. I tried something new – a strategic agreement with the workers, designed to stop the idea that the only way to increase productivity was to fire people," Landerretche told Metal Bulletin.

"In exchange, workers stopped the idea that they should extract everything possible from the company during negotiations. The way we did that was to have both sides agree on a long-term strategic view of the company, including returning it back to the first quartile in terms of costs and certain productivity goals," he said.

"When we signed it, people were sceptical but now for almost two years we've had substantially better labour negotiations than the private sector," he added.

During its negotiations, the company has achieved 0% real readjustments and bonuses that are 40% lower than previous levels. Landerretche said the reason Codelco has managed to do this is because it is in partnership with the labour unions.

"We don't view the unions as the enemy, they don't view us as the enemy, and we're all interested in making Codelco work for the long term," he noted.

"Now, can this approach be copy and pasted into private companies? I have no idea, and maybe not. But maybe yes. My advice is at least give it a shot. All I can tell you is you don't do it by just talking about it," he said.

"It's a 24/7, 365 days a year job, not just before the negotiations. It's a whole process of professionals dedicated to labour relations and it's paid off for us. I'm not sure you can argue that would only work at Codelco," he added.

The company will be negotiating a new contract towards year-end with professional workers or supervisors at its El Teniente mine.

Chile's mining firms must rebuild trust with the country's population, having allowed understanding of the sector among Chileans to weaken, Landerretche said

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Companies including Codelco must narrow the gap between themselves and citizens, including workers, and recover trust without turning their backs on people, he said. This will ultimately boost productivity, he told delegates at CRU's 16th world copper conference in Santiago, Chile.

"The super-cycle generated several distortions and inappropriate actions, and we're suffering from that today," he said. "How can we rebuild trust if we're anonymous?"

"Miners have been silent, as if they had to be ashamed of something, as if they had to hide something. It's only natural that citizens asked what the industry was doing that it had to hide," he added. "Are they doing something inappropriate?"

This only led to greater mistrust, he said. This should instead be replaced by more open, honest communication to show people why companies such as Codelco are investing.

The path forward should be to improve standards of corporate governance, boost transparency and accountability, and enhance communication with the public, workers and other stakeholders, Landerretche added.

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Copper TC/RCs benchmark widely expected to fall in 2018

PERRINE FAYE

Many in the copper industry anticipate copper treatment and refining charges (TC/RCs) to remain at two figures for the rest of this year and to fall in 2018.

The annual benchmark for 2018 is expected to settle below this year's $92.5 per tonne and 9.25 cents per lb, reflecting the tightness in concentrates supply.

"It will have to go lower than $92.5 in the following year," Codelco senior commercial vp Rodrigo Toro told Metal Bulletin during Cesco Week in Santiago.

"The development of new smelters in China combined with the strikes at Escondida and Cerro Verde and the problems at Grasberg have left the market in a short situation," he added.

Codelco is not a market maker in the annual copper TC/RCs benchmark negotiations and typically follows the numbers agreed by Freeport or Antofagasta. These miners settled with Chinese smelter Jiangxi Copper in November on the 2017 benchmark of $92.5 per tonne, which was down 5% from 2016 levels and below smelters' initial demand for a three-digit number.

According to Chinese trader Metal Challenge, smelting capacities in China will increase by 245,000 tonnes of copper content in 2017 from 2016, mainly due to growth at Dongying Fangyuan, Zhongyuan Gold, Heding (Fuye II) and Shuikoushan.

Domestic supply in 2017 is unlikely to rise above 1.6 million tonnes of copper content, from 1.5 million this year, leaving China reliant mainly on imports of concentrate, Metal Challenge added.

This in turns will push spot TC/RCs lower; they were last assessed around $70 per tonne and 7 cents per pound.

"Smelters are desperate for concentrate at the moment – I think low TC/RCs are here to stay," a mining source said.

Miners are seeing a more or less balanced concentrates market this year – unless more supply disruptions occur – and envisage a deficit in 2018, especially in the second half of the year. The shortage may be even bigger in 2019, they said.

"A deficit will more probably be due to increases in smelting capacities [in China] without much coming from the miners' side and therefore TC/RCs should continue the downward trend seen in the last annual negotiations," another mining source said. "I think this is the consensus."

Most trading and mining sources expect the annual TC/RC benchmark to fall in the $80s for 2018. One trader anticipated it would be $80-$85 per tonne and another a figure around $85, for example.

A smelting source also told Metal Bulletin that a decline in the annual benchmark is likely, although smelters would argue for a figure at $90 or above.

Annual negotiations typically do not start before September each year and usually conclude before Christmas.

Copper smelters need three-digit TC/RCs – Aurubis ceo

PERRINE FAYE

Copper smelters need treatment and refining charges (TC/RCs) to move back above $100 per tonne to take into account rising smelting costs and a balanced concentrates market, Aurubis ceo Jürgen Schachler told Metal Bulletin.

"The TC/RC 2017 benchmark settled below our expectations but we still see a necessity to go back to three digits – the cost of smelting is increasing, in part due to stricter requirements on sustainability and the environment," Schachler said.

Spot copper TC/RCs have dropped to $73.90 per tonne/7.39 cents per lb over the past two weeks, their lowest since August 2013 and well below the annual benchmark of $92.50/9.25 cents. The fall in TC/RCs reflects recent tightness in concentrates supply because of supply disruptions at Escondida (Chile), Grasberg (Indonesia) and Cerro Verde (Peru). But there are signs of improvement after a temporary strike resolution at Escondida and a temporary accord with Freeport in Indonesia for Grasberg to resume exports.

In general, miners are also investing in new projects, following the rally in copper prices to about $5,760 per tonne on the LME, from about $4,300 per tonne a year ago.

"It's a balanced market now, but at current prices more concentrates should come to the market while there aren't many additional smelting capacities in sight," Schachler said. "In the medium term, we believe TC/RCs will go up, both for spot and annual contracts."

Aurubis intends to be more vocal during annual copper TC/RC negotiations later this year to push for a higher benchmark. But it acknowledges that China, accounting for 50% of global concentrate consumption, is the right country to lead negotiations. Aurubis buys 90% of its copper concentrate requirements on long-term contracts.

Aurubis' diversification and expansion strategy in non-ferrous and precious metals may lead to acquisitions outside Europe and into Asia, Schachler told Metal Bulletin.

Jürgen Schachler

Schachler had said earlier this month that the company planned to diversify outside copper and explore acquisitions, in addition to internal growth.

The diversification strategy "will exclude mine acquisitions and greenfield developments – it will be either an expansion of existing facilities or/and takeovers," Schachler said.

"I don't exclude going outside Europe and into regions such as Asia," he added.

At present Aurubis's only production facility outside Europe is the downstream site of Buffalo in the USA. "Two-thirds of mergers are failures, so we want to do it right. It has to strengthen the core," he said.

Although copper will remain the core business, Aurubis expects to increase its presence in other products – such as silver, gold, platinum and possibly zinc and nickel. At the same time, it plans to improve international efficiency on all operations and achieve savings of more than €200 million ($213 million) per year over three years, Schachler said.

Aurubis has "strong expertise in copper, including cutting-edge technologies and very complex processes" and is therefore able to respond to sustainability requirements along the supply chain, he explained.

Germany-based Aurubis produces more than 1 million tonnes of copper cathode per year and employs more than 6,400 people at production sites in Europe and the USA.

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Anglo American continues to focus on the basics – copper ceo

ANDREA HOTTER

Anglo American's copper division is continuing to focus on cutting costs and improving productivity via enhancements to the company's operating model as well as innovation and technology, Hennie Faul, the ceo of the unit, said.

As with efforts in the rest of Anglo American, the copper division has adopted the approach that, while it has made significant headway in improvements, there is still room to do more.

"We have made good progress and picked all the low-hanging fruit but we haven't said, 'OK, that's enough, we're not going to do anything'. We are still continuing with the programmes," he told Metal Bulletin in an interview.

"Firstly, we believe it sets a cost-conscious culture and we're not being stupid about it and damaging the business by not investing the right amount or delaying maintenance where it has to happen – we have not done that," he said.

According to Faul, Anglo is ahead of its company-wide ambitions to fix its balance sheet and as a copper division it is ahead of its cashflow delivery to the group.

Anglo, which like its peers was hard hit in the downturn of several years ago, had some longer-term cost improvement programmes running over a year or two that kicked in and were accelerated to secure incremental improvements, he added.

The copper division also rolled out a new Anglo American operating model last year and is now seeing the benefits of this playing out, Faul said.

"You might argue that this is the kind of thing you ought to have been doing anyway but technology has given us a new approach and it'll take us about five years to get it embedded. If we only get 80% embedded, we think we can get to a 30% improvement in cost productivity in certain areas," he noted.


Hennie Faul

"We are continuing to roll out the operating model – it started at Los Bronces and we'll take it to our other operations," he added.

The company has focused on innovation and technology-driven projects to take it further down this route. These include a plan to remove waste particles from ore prior to processing and store the sand differently, ensuring a higher grade goes through the plant.

"We've started that at Los Bronces and we will be looking with our other shareholders at Collahuasi as the ore is amenable, although not so much at Quellaveco as the ore isn't amenable; it depends on the type of ore. It helps us not having to increase our water use so with the same amount of water we'll be processing more," he added.

The company has in the past prepared worst-case scenarios of copper pricing down to $1.50 per lb, Faul said, even as recently as a year ago. But prices at current levels "are very OK for Anglo", he added.

"That's why some of the programmes are a bit longer. We didn't want to damage the business and we didn't have to – we didn't have to stop any of the businesses. Even El Soldado, which is a high-cost operation, was cash-neutral last year. We managed to cut costs and keep it cash-neutral without doing damage to the structural business, closing certain streams and things like that," he added.

Copper in balance; prices unlikely to rally rapidly

The copper market is fairly balanced and prices are unlikely to return rapidly to a bullish cycle, Faul said

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There are currently no clear signals of looming disruptions to the status quo on either the supply or the demand side, he said

"The Anglo view is that there will not be a quick return to a bull cycle – it'll be a slow return. We don't see any disruptors on the horizon that could turn it rapidly into a bull market," he said.

"I think prices have stabilised a bit. Planning-wise, we don't discount price moves lower so we are prepared but I see the market remaining at current levels for now," he added.

Supply-side factors, including strikes, weather events such as floods, a reduction in capital expenditure, capacity cuts as well as aging operations and declining grades, have been a driving force in copper for some time, Faul noted.

"There are some things that just aren't on your radar screen and they can play out and counterbalance any slight difference in demand," he said.

Copper prices have failed to rally significantly despite strikes over the past several weeks at major assets such as the Escondida, Grasberg and Cerro Verde mines.

" China is showing positive continuous growth, albeit slower, and yet there is still some uncertainty; the numbers don't look like its growth"

Faul expects supply issues such as these to continue, he said, noting that several uncertainties continue to cast shadows over the market. These include policy developments in the USA, the impact of Brexit and how future growth will pan out in China.

"We're not in a deficit yet but we're not in an oversupplied market either. Copper is balanced; it's about par. I just think nobody knows. China is showing positive continuous growth, albeit slower, and yet there is still some uncertainty; the numbers don't look like its growth will be disrupted but you never know," he told Metal Bulletin.

"In 2000-2002, people didn't expect the upturn to be as it was, yet things are different now. China is different to how it was then – its economy has slowed down and for that reason it'll continue to be a slower recovery, and we're certainly planning for that," he said.

Management at Collahuasi mine are working on measures designed to ease potential tensions during labour negotiations later this year and avoid the possibility of a strike, Faul said.

Although he could not rule out the possibility of a strike at the mine, he said, positive steps had already been taken at the operation, in which the company has a 44% stake.

"I don't want to be overly optimistic: I can't rule out a strike at Collahuasi. It will always be a risk, but I think it's something we can manage," he told Metal Bulletin.

"Collahuasi has a number of good things in place. Production is good, and has been good for the past two to three years. They have worked hard at employee relationships and the management of Collahuasi is well focused on continuing that, and all that will help," Faul added.

The current labour contract expires in October, and no formal talks have yet started. Faul said that Collahuasi management "is in the process of negotiating when it will start those discussions, but they haven't started yet".

According to Faul, the preliminary discussions have included how to build productivity incentives into wages and bonuses. But certain precedents have been set by previous labour contracts across Chile's mining industry that have been detrimental to the sector, he noted.

"We have probably played a part in our own downfall in agreeing to certain structures in Chile – such as sign-on bonuses and increases above inflation. The problem is that it is bad for the Chilean industry – it stops Chile being a productive copper supplier in the world market and drops its productivity index," he said.

"We have seen some signs of that. It has been a discussion for the past few years – I think it's the right discussion to have and we need to continue with it," he added.

Last year, the company faced **a strike at its El Sodado** and **Los Bronces** mines in Chile, along with several community issues.

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"Emotions and interests are always there when you do labour negotiations. There's a high-price scenario. But we do believe everyone should have a fair wage and benefits should be in the right areas – education and medical – and we'll always look at that and have the dialogue with the unions. That's the right process and it's a good process," Faul said.

"We have had good relationships with our unions over the years. Last year emotions ran higher. Because of precedents set in previous years, changing contract terms created tensions – for others as well, not just us," he added.

But Faul told Metal Bulletin that the company would not stand for violence or be pushed into anything by unions.

"We cannot agree to violent strikes or intimidation and we won't stand for that, as we showed with the contractor strikes last year. We couldn't put safety, damage to property and the possibility of environmental damage at risk, so we stopped the operation. We will do that with other operations as well," he said.

"We cannot have a gun held to our head to increase bonuses for that purpose. Collahuasi is a risk, but I think it's a managed risk, like all our other operations," he added.

Glencore also holds a 44% stake in Collahuasi, while the remaining 12% is held by Japan Collahuasi Resources BV.

Green light at Quellaveco next year?
Anglo American may give its Quellaveco copper and molybdenum project in Peru the go-ahead next year, provided targets – including keeping costs under control at existing operations – are achieved, Faul said.

The company has already finished feasibility studies at the project and is in the middle of option analysis, which should be completed at year-end, he said.

"We could look at giving the green light to Quellaveco in 2018, provided costs are under control at our current operations. But we haven't yet focused on growth. If we as a company are looking at new projects, it will be once we have shown to the board and shareholders that our debt and balance sheet is under control," he told Metal Bulletin.

"If by the end of the year we calculate that we can reinstate a dividend, then we'll look at what capital we would need to deploy for growth...Then we will be in a position to make a decision on whether we execute the project some time in 2018," Faul said.

Quellaveco is located in southern Peru, close to the city of Moquegua. The project has been designed as an open-pit operation with the capacity to process up to 127,500 tonnes of ore per day.

Speaking in an interview during the annual Cesco industry week in Santiago, Chile, Faul said the decision on Quellaveco will also depend on whether copper prices stay stable, and whether Anglo has the "right mix" of commodity prices within the group.

"We wouldn't go ahead, for instance, if the price of iron ore or diamonds collapsed," he added. "We have done a lot of early work at Quellaveco and we continue with that early work."

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Focus on productivity should become common practice, not crisis management – Antofagasta CEO

ANDREA HOTTER

A strict focus on improving productivity should become common practice for mining companies rather than deployed only as crisis management, the ceo of Chilean miner Antofagasta, Ivan Arriagada, told Metal Bulletin.

In an interview at the annual Cesco industry week in Santiago, Chile, he said the economic downturn and subsequent decline in copper prices had sparked improvement programmes across the industry. Now that copper prices are improving and the outlook is more positive, this approach needs to be maintained, he added.

"We are looking at productivity and continuous improvement differently and we don't think we should do this in response to lower prices, which is how it originally started, but it needs to be something that is almost irrespective of the cycle," he said.

"We like to think of productivity as something that we will wire into our organisation in a way that is very similar to safety. We do safety with a single purpose, which is to eliminate fatalities in our operations, and we continue along that path of improving without ending, as you don't reach a stage when you say you've accomplished no fatalities and it's not relevant any more. We look at productivity in the same way," he added.

The company is looking for improvements on a continuing basis and plans to "squeeze out extra capacity that we may have in our plants, irrespective of the price cycle", Arriagada said.

The company is targeting additional savings of $140 million beyond moves in currencies and input costs for this year.

Ivan Arriagada

It also has a structure focused on the process of continuous improvement; it believes it has around 5% of latent capacity that it can unlock from within its existing infrastructure and plants.

"Next we'll look also at our ability to grow or develop new capacity but we'll do that in a very deliberate and conscious way, making sure that we get the return out of the capital we deploy in any growth or development investment," Arriagada said.

"The industry has been probably invested in overcapacity in the last several years, especially towards the end of the super

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cycle, and therefore we want to be very deliberate and conscious of the investments that we do going forward, and deploy capital only when we know the returns we expect will be achieved," he told Metal Bulletin.

"If the returns are not there, we will not seek volume for volume sake but rather seek profitable tonnes of value over volume to ensure that every tonne we produce contributes to the cash flow generation of the company," he added.

The company is using innovation as a core value to drive strategic choices of projects it wants to invest in, including primary leaching, tailings management and mass material movement. It has also developed both internal and external open innovation schemes to generate new ideas and is looking at technology as an enabler for its future roadmap for growth, Arriagada said.

"There was investment made in the industry then which probably didn't yield some of the expected returns and there's now caution around"

That growth includes the possibility that the Antofagasta board will approve an incremental expansion at Los Pelambres, with a feasibility study already completed. This would increase capacity at the operation to 400,000 tpy from 350,000-355,000 tpy.

Antofagasta is also working on an expansion at Centinela, which would see a second concentrator added. Feasibility studies for the project are slated to finish in 2018; environmental permits have already been secured. A decision on whether or not to take it to the board will then be made.

"We're allocating capital with the principle of ensuring right returns. We don't want to commit the balance sheet or our execution capability with two large projects, so would do Pelambres first, Centinela next," Arriagada added.

Industry must stay disciplined as prices rise

Copper is unlikely to experience another super cycle in the near future but the industry needs to remain disciplined in its approach to investment while prices rise and supply tightens, Arriagada said.

The growth of China over the past decade was "quite unique" but had generated a lack of control over investments in some instances that failed to generate returns, he said.

"We're back into more normal cycles, which tend to be shorter and driven by the usual business cycle. We're not building in the same way what happened in the last ten years with the super cycle," he said.

"There was investment made in the industry then which probably didn't yield some of the expected returns and there's now caution around, but it's well founded and we need to be very disciplined with capital allocation. In the end, the whole choice of when to develop resources is a key one in terms of your ability to make a good return," he added.

The Chilean mining company has the benefit of having two very large mining districts with a large mineral resource, Arriagada noted.

"The issue is when to develop them, what's the sequence to make investments to be able to monetise those resources. We need to be cautious of timing in the way we allocate capital to ensure that we do get the returns that we expect back," he said.

"We are in a better position in others because we're long copper, from an inventory point of view. When we develop that inventory is a very strategic choice of capital allocation. We want to do it in a way that we ensure that we get the required return on the capital we deploy," he added.

Antofagasta is projecting a balanced market for copper in 2017 before an accelerated tightening of the supply-demand balance.

"The general expectation two years ago was that the market would tighten in 2019-2020, and we're seeing evidence that [it] is coming forward and it'll probably happen earlier, and now in 2018 we'll start seeing signs of there being a deficit," he said.

"That's a result of both China copper demand growing at rates we expect will be around 3% a year this year and next, and a constraint on the supply side of copper with declining grades, a pipeline of projects that has dried up, new production which has been absorbed over the last couple of

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years and not a lot more in the pipeline," he told Metal Bulletin.

"All of that means a tighter market earlier than most had expected. Ten years ago China's demand for copper was growing at double-digit rates. Today it grows at smaller rates from a larger base but it's still a different dynamic [from a decade ago]," he added.

Arriagada is becoming "increasingly more comfortable with the transition China is making to a new normal", he said, noting that the country's public spending had been directed towards investments that are copper-intensive such as in infrastructure, urbanization and consumer goods.

He also noted positive moves to improve safety and environmental standards in China that had led to the reduction of mine output there last year.

"If there is any concern it is that China still has high debt levels and this could create systemic risks," Arriagada noted.

But the country's ability to achieve a smooth landing from very high growth rates down to 6.5% this year, plus the stimulus that has been applied, is "all very consistent with the story of China transitioning to a new normal", he added

"We see China as evolving in a way that is favourable and positive," he said.

Similarly, he voiced concern about public policy leading to some form of trade war between major countries including China that would ultimately hinder economic growth and ultimately hurt commodities.

"I don't think a trade war is beneficial to trade generally or to global commodities trade. We'd probably see an impact on global economic growth in the medium term if there was a trade war and, since commodities are linked to global growth, this would also impact consumption of commodities," he said.

"If China's ability to continue along the path of managing its transition to a new normal were to get disrupted, for example because of a trade war, this could have an impact on the market," he added.

'Cautious optimism' over copper market fundamentals

Supply disruptions and the growth of Chinese demand should continue to support copper prices, avoiding a return to the low levels seen in 2016, Arriagada said.

"We have started this year with more favourable price conditions, boosted by the continuous improvement in expectations and by the production problems in some of the world's largest operations," he said

This scenario meant the expected copper market surplus did not materialise.

Antofagasta expects Chinese copper consumption to grow up to 3% per year as the country moves ahead with infrastructure projects.

Meanwhile, supply disruptions will continue to put pressure on copper availability.

"As a result, we do not see copper prices going back to the low levels of 2016," Arriagada said.

China will remain the key driver of the copper market in future, he added.

"We are cautiously optimistic in view of what is happening with regard to copper," he said.

The mining industry must focus on increasing productivity in the next decade while it simplifies procedures and structures be more flexible and able to take better decisions, Arriagada said.

The efficient use of capital – by prioritising capital allocations and sharing infrastructure to reduce costs – will also be vital for the industry, Arriagada said.

"Innovation will be key to how we face the industry's challenges and how we increase the productivity of our assets," he added. "We should understand it as a source of competitive advantage."

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Sierra Gorda mine project a long-term investment – KGHM

DANIELLE ASSALVE

Polish copper miner KGHM still sees "great value" in the Sierra Gorda mine in Chile, even though it should take at least three more years to see returns.

"We're not profitable at this particular moment, but Sierra Gorda is a long term investment," ceo Radoslaw Domagalski told Metal Bulletin.

"We have to look at the project from a full life of mine perspective, which is more than 24 years. We see a great value in continuing with this project," he added.

According to Domagalski, within three to five years the mine could "be in a much better economic situation than today", enabling KGHM to have positive returns from the investment.

KGHM, which owns 55% of Sierra Gorda, acknowledges that the acquisition made in 2012 was not ideal given the high copper price at the time. Yet it was good decision to go international and to be in Chile, Domagalski said.

The executive, whom has been the head of the Polish miner since November 2016, believes the main challenge of Sierra Gorda is to reach stability in molybdenum recovery. The combination of a lower than expected molybdenum recovery and prices have been hitting the mine's results.

"We suffer from both sides [production volume and price]," Domagalski said. "[Yet] I still believe we can get a significant progress in terms of [moly] production and recovery and I hope we can still get a good profit from it."

Radoslaw Domagalski

Achieving predictable production level will be possible mostly by getting hold of the right technology for moly recovery.

"The good news is that we are pretty much aware of these challenges [...] and we are going in the right direction," KGHM's ceo said. "We don't want to give up on our presence in this project."

The mine, which began to ramp up in 2014, is also owned by Sumitomo Metal Mining and Sumitomo Corporation.

As it focuses on operational improvements, KGHM also expects Sierra Gorda's copper capacity to increase to 140,000 tpy in two years - its current nominal copper capacity is 110,000 tpy, however production was just 90,000 tonnes in 2016, Domagalski said.

While it looks to bring Sierra Gorda to stability, KGHM sees no room for new investments in Chile. But the company has plans to invest about $500 million per year in Poland for the next five years, Domagalski added.

KGHM has mines, smelters and refineries in Poland, is developing the Deep Glogów mining project and has pre-production and exploration projects in the southwest of the country.

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Copper price upside looks capped for H2 – Sonami

PERRINE FAYE

The increase in the copper price so far this year may not extend into the second half, which may cap the year-on-year rally to 12.5% in 2017, Diego Hernandez, president of Chilean mining society Sonami, said.

"The price has been firm this year but I'm not sure about the second half. I don't believe it will go up," he told Metal Bulletin.

Sonami expects the copper price to average $2.45-2.50 per lb ($5,400-5,512 per tonne) in 2017, up 12.5% from $2.20 per lb in 2016. It had averaged $2.65 per lb in the first quarter of this year.

The copper price for three-month delivery was last around $5,780 per tonne on the LME, having climbed above $6,200 in February, but failed to hold at that level because of high stock levels and subdued demand in China. It traded as low as $4,320 per tonne in January 2016.

The copper price should increase in 2018 when the supply-and-demand balance tightens, Hernandez said. New mine projects that should start next year will take two or three years to reach production.

Diego Hernandez

Chile's production is expected to climb to about 5.8 million tonnes in 2017, returning to the level seen in 2015, although the growth is modest given the large investments made in recent years, according to Sonami.

"The mining industry in Chile is in a transition phase. For a long time, the focus has been on increasing production but, after prices fell, the efforts switched to reducing cash costs. We still have a lot to do to be competitive," Hernandez said.

This need to become more competitive is Chile's biggest challenge and the only way to retain a 30% share of global copper production, he added.

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Codelco sees room for further cost-cutting – ceo

DANIELLE ASSALVE

Codelco, the world's largest copper producer, intends to increase its productivity by 20% by 2020, and continues to be strongly committed to reducing costs, ceo Nelson Pizarro told delegates.

The Chilean state-owned miner, which reported savings of nearly $1 billion from 2014 to 2016, sees plenty of room for further cost-cutting.

The company expects to make total cost savings of $2.2 billion for 2014-2020.

According to Pizarro, factors such as increased productivity and reduction of the consumption of key inputs such as water and steel would contribute to such savings.

"We have much space to advance," Pizarro said.

While 2016 was the worst in Codelco's history, "we have begun a transformation process to make Codelco a more competitive organisation in the future," he told delegates.

The miner has also been focused on restoring its balance sheet strength and has reviewed its strategic investment projects.

"Conscious of our capex limitations, we focused in the projects that seemed indispensable, more mature and profitable," Pizarro said.

Nelson Pizarro

The company is currently focused on three projects, including underground excavation at Chuquicamata.

Codelco's capex restrictions come from unconventional mechanisms to return cash to the Chilean government.

Being state-owned, the company also has less flexibility to use financial management tools such as the sale of assets, the miner said.

In view of that, the development of a long-term plan is vital to ensure the sustainability of Codelco's operations.

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Chilean miners need to make U-turn to reverse decline in productivity – Collahuasi ceo

DANIELLE ASSALVE

Chile needs to correct the mistakes that have led to the decline of copper mining productivity and shareholders' returns in recent years, according to Minera Collahuasi's ceo.

"Several countries have seen a decline in productivity, but in Chile it has been more noticeable," Jorge Gómez said at CRU's 16th World Copper Conference in Santiago, Chile.

This has been caused, mostly, by worsening mine grades, higher costs, prioritisation of growth over productivity and increased competition for assets and services, he added.

As a result, returns to mining shareholders have decreased significantly over the past five years and are an average of two percentage points below the S&P500 index.

Increased debt and margin erosion in the mining industry have also contributed to the decline in shareholder returns, according to Collahuasi's ceo.

To reverse this scenario, Gómez said, mining companies need to develop new business models based on technology, to address sustainability issues – including energy, water and community relations – and to focus on the creation of more effective organisations.

"The only way out is productivity," he told delegates.

The key is to go back to doing things in a simple way and "to stop doing things that have no impact" on the miner's results, Gómez added.

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Chile mining industry needs overhaul or will fall behind – BHP exec

ANDREA HOTTER

Miners active in Chile need to tackle the challenges facing the industry and transform it or run the risk of losing relevance, BHP Billiton's president of operations for minerals Americas said.

According to Daniel Malchuk, copper producers need to initiate a transformation that will help over the next 25 or even 100 years.

"Change won't be easy, and the challenges are huge," he told delegates.

Malchuk cited labour tensions, referring to the **strike action at the company's Escondida mine** earlier this year.

"But no matter how difficult, change and transformation are key to maintaining the relevance of Chile's mining industry," he said, adding that it was incumbent on miners to play a key role in this process.

He said the industry needs to address challenges of labour and communities relations via public-private partnerships, ensure high safety standards and create a culture with more inclusion and diversity.

Malchuk noted that these changes would not only benefit the mining sector but also the broader economy of Chile.

Daniel Malchuk

But it will require an honest assessment of where the industry is today and a bold plan for the future, he said.

"The opportunity of transforming the mining industry is here," Malchuk added.

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Enami copper production to stablise in 2017

PERRINE FAYE

Chilean miner Enami's copper cathode production for 2017 is set to stabilise at around 140,000 tonnes, a level similar to that in 2016 but still down more than 20% from four years ago, a company executive told Metal Bulletin.

Of that total, 120,000 tonnes will be electro-refined (ER) cathodes and 20,000 tonnes will be electro-winning (SX-EW) cathodes, sales manager Pedro Pablo Lavin said.

The state-owned company supports small and medium-size miners in Chile. It buys concentrate from medium-size miners that it sends it to its Paipote smelter, which produces anodes that then go to Codelco's Ventanas for refining into ER cathodes, as part of a tolling agreement.

It also buys ores from small miners to produce SX-EW cathodes at its five electro-winning plants - Taltal, Salado, Matta, Vallenar and Delta. But many of these small miners were hit by the fall in copper prices in the past years.

"Around 1,000 small miners that have been established for many years are still producing but the other 1,000 miners that had entered the business more recently because of rising prices, have now left the market," Lavin explained.

LME three-month copper prices have fallen in the past four years, with the downside accelerating from mid-2015 to hit a low point of $4,320 per tonne in January 2016. They have recovered to $5,756 per tonne on Monday - they had climbed

above $6,200 in February but failed to hold at that level amid high stock levels and subdued demand in China.

Meanwhile, due to a technical issue in an oxygen plant, Enami was forced to close its Paipote smelter for a week in February and declare force majeure on sulphuric acid deliveries, but all is back up and running now, Metal Bulletin understands.

Enami is also in the process of upgrading its Paipote smelter to comply with new regulations in Chile requiring smelters to capture at least 95% of sulphur emissions - the initial investment of $50 million will enable Paipote to remain compliant for up to five years.

The company is reviewing plans to make a much larger investment of around $500 million to build a new smelter in Paipote, which would double processing capacity to 700,000 tonnes of concentrates and 180,000 tonnes of anodes per year, Metal Bulletin has also learned. The extra anodes would be refined at Codelco's Ventanas smelter.

Enami declined to comment on the expansion plans.

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India to be among largest Cu concentrates consumers by 2019 – Vedanta's Sterlite Copper

DANIELLE ASSALVE

India should become one of the largest consumers of copper concentrates by 2019, Vedanta subsidiary Sterlite Copper said, as it works on doubling its smelting capacity in the country.

Within two to three years, the company's anode output capacity should reach 800,000 tpy in India, from the current 400,000 tpy, Sterlite Copper ceo P Ramnath said at CRU's 16th world copper conference in Santiago, Chile.

Cathode production is expected to reach 850,000 tpy by the end of the expansion, compared with the current 450,000 tpy.

Meanwhile, Vedanta's rod output capacity should reach 550,000 tpy, from today's 250,000 tpy, Ramnath said.

Besides India, Vedanta also has copper assets in Zambia and the UAE.

"There is a tremendous potential for metal demand growth in India," the executive said.

Among the major drivers were the growth of the country's housing market, investments in highway projects and renewable power projects.

Additionally, higher growth in Asian markets also provide interesting opportunities, Ramnath added.

While demand grows, India has no major copper reserves and a limited domestic sulfuric acid market.

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Chinese rise in copper demand to support prices – Chinalco ceo

DANIELLE ASSALVE

China's demand for copper will increase at a steady pace and support the metal's price, while stocks are expected to return to normal levels, Chinalco's president said.

"Constant Chinese growth will help the global economy to grow and will contribute to a stable consumption of copper," Jiangqiang Wu told delegates at CRU's 16th world copper conference in Santiago, Chile.

He added that, despite China's significant economic growth, the country's infrastructure needs remain high. Investments in areas such as roads and airports will continue to boost the demand for copper and other metals.

The scenario is also positive in the short term, he said.

"The **recent [copper] price fall** is short term and seasonal. Due to the high demand in China, stocks will come back to the normal levels," he told delegates.

Several supply disruptions should also support prices.

Meanwhile, with the sharp decline in copper concentrates TC/RCs, "a great amount of copper smelters arranged maintenance".

Wu also pointed out that, while global mining costs reached the bottom, the prices of raw materials have been increasingly high.

"There is lots of uncertainty in the copper market in the short term," he said, adding that, despite this, Chinese demand growth is assured.

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Copper in deepening deficit after production issues – Chile's mining minister

ANDREA HOTTER

The world refined copper market is in a deepening deficit due to several disruptions in Chile, Peru and Indonesia, according to Chile's minister of mines.

The forecast market deficit for 2017 has widened to 110,000 tonnes, Aurora Williams told CRU's 16th world copper conference in Santiago, Chile, citing strikes at the Escondida and Cerro Verde mines as well as export issues at Grasberg.

The deficit is expected to remain for 2018, albeit at a smaller 45,000 tonnes, she said.

After averaging $2.20 per lb in 2016, the copper price is forecast to average $2.50-2.55 per lb in 2017, Williams added.

"These levels could be maintained in 2018, given current expectations for sustainable market conditions," she told delegates. "It's premature to think of a high price cycle now but we're in a reasonable price cycle."

Chile's copper production, which reached 5.545 million tonnes in 2016, is expected to reach 5.94 million tonnes this year.

Capex for mining projects fell alongside prices, Williams noted. A lag effect will now be felt while prices start to rise amid a lack of new or brownfield projects in the pipeline, she said.

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Forthcoming labour negotiations to be easier after negative effects of Escondida – Cochilco

DANIELLE ASSALVE

Chile's state copper commission, Cochilco, expects the upcoming negotiations between workers and mining companies in the country to be easier than those at Escondida, which had an inconclusive ending after a 43-day strike.

After rejecting the company's final wage offer and invoking a rarely used legal provision to extend their old contract until next year, **workers at BHP Billiton's Escondida copper mine returned to work** in late March.

"Escondida's workers did not get a bonus, did not have a pay rise; they just postponed the negotiations for 18 months in the hope that they will get a better deal," Cochilco vp Sergio Hernández told Metal Bulletin. "But this result is not good, not for the workers nor for the company."

The contrast between the negative consequences of what happened at Escondida and the **"very positive" early wage deal** concluded by Codelco with Chuquicamata's workers will pave the way for better negotiations in the months to come, according to Hernández.

"[The examples of] Codelco and Escondida ensure that the next collective negotiations will be easier. Because one was very responsible and the other resulted in losses for everyone," Hernández said.

Among the mining companies that will sit down with workers to negotiate wage contracts this year are Zaldívar, Codelco's El Teniente and Collahuasi.

"[Given the consequences of Escondida's strike], we believe that the next negotiations of a large company, which is Collahuasi, will be carried out on much better terms," the Cochilco vp said.

This despite the still unknown impact of the recent reform in the Chilean labour law, which states that companies are not allowed to reduce pay or benefits for current workers.

"While this [labour law reform] is good from the workers' point of view, it is very complex for the companies," Hernández said.

He believes that this will lead companies to take a stronger stance in negotiations with workers.

Production loss

The commission estimates that Escondida's strike represents a copper production loss of 220,000 tonnes of fine content, or about 20% of the mine's total annual production.

While about 150,000-160,000 tonnes would account for the direct loss from the 43-day stoppage, the remaining volume reflects the lower production while the mine ramps up following the strike.

"This has a strong impact on Chile's copper production," Hernández said, adding that this means "about 3.8% of the total production that the country expected [for 2017] will not exist due to the [effects of the strike at Escondida]".

With that, Chile's production should remain nearly stable this year against 2016, when the country produced 5.5 million tonnes of copper.

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In January, Cochilco had forecast that Chile's copper output would grow to 5.79 million tonnes in 2017.

The strike at Escondida also led the Chilean central bank to reduce its forecasts for Chile's economic growth in 2017.

Higher prices

Despite such negative effects, Escondida's strike had pushed up copper prices, which in turn will increase the country's revenues from tax and royalties paid by the mining industry, according to Cochilco.

"The rest of the copper mining industry in the world, including all the other Chilean companies, have benefited from the price effect," Hernández said.

The situation with Freeport's Grasberg and Cerro Verde mines, as well as the flooding in Peru, also gave support to copper prices, coupled with demand from China and expectations of increased consumption in the USA.

Delayed investment in capacity expansions over the past three years has also contributed to supply being more limited now, Cochilco's vp added.

This will lead the global copper industry into a higher-than-expected deficit in 2017, of more than 200,000 tonnes, Hernández said.

Earlier this year, the commission estimated the market to be in a deficit of 63,000 tonnes in 2017.

In view of that, Cochilco will soon release a revision of its copper price forecast for 2017, currently estimated at $2.40 per lb.

Yet in the year so far, the average copper price has already reached as high as $2.64 per lb.

According to Hernández, the new average price estimate for 2017 will be "a bit lower" than $2.64 per lb, but not higher than that.

This is because that while supply issues would justify higher prices, the significant copper inventories around the world should limit the impact that these issues will have.

Investments could rise

Lower copper prices over the last few years had led miners to focus on cost reduction. Now that prices are higher, mining companies find themselves in a much stronger position, according to Cochilco's vp.

"All the large mining companies have reduced costs [...] and now not only the [higher] prices help, but also the [lower] costs," Hernández said. "The scenario for this year and for the mid-term is more positive due to the cost structure and also due to the price expectation."

The fact that copper prices are now at a "reasonable level" could also lead companies to resume some delayed investments in the Chilean copper industry, according to Hernández.

Cochilco estimates Chile's current mining investment portfolio for the next ten years at $50 billion, with the state-run Codelco accounting for more than 40% of that.

The figure is still low compared with previous years.

Yet, the increased cash and credit availability, as well as the overall improved sentiment in the industry should make investments grow again, Cochilco's vp added.

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